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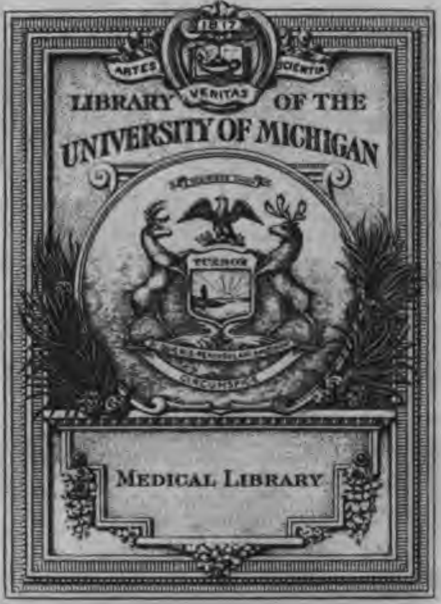

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Art. I.—MEDICO-CHIRURGICAL TRANSACTIONS.

Medico-Chirurgical Transactions, published by the Medical and Chirurgical Society of London, Volume 16*th, part* 1, *pp.* 234. *London,* 1830.

The multiplicity of books is not an unmingled benefit. It has its necessary evils, and may, not unfrequently, seriously retard the progress of human knowledge by destroying the disposition to patient thinking on the part of authors, and inducing in their readers a taste for general, superficial acquirements, at the expense of laborious investigation and practical improvement. Wisdom may be supplanted by learning; the exercise of the memory may be regarded as of more value than that of thought and reflection. It cannot be imagined that the claim, set up for every book, pamphlet, or sheet, for originality in observation or doctrine, can be well founded. Much talent is often expended in the endeavour to give the air of novelty to ideas trite and uninteresting. Few books reward the reader for the time and labour of perusal: and hence Periodicals are popular, because they often present at one glance, the essence of a work, compounded secundum artem of a very few active ingredients, so as to assume an imposing aspect. Isolated ideas and original facts are by their instrumentality immediately presented in all their native vividness and perspicuity to the public mind, instead of being buried, amidst irrelative observations, in the form of a large octavo or a ponderous quarto, by the ambitious book-maker. Unfortunately for the character of man for inventive genius, experience proves that even periodicals are too numerous; few, pretending to present original matters, deserve more than a hasty glance. This must necessarily be the case, as the day for publication arrives, before good materials can always be collected. To remedy this evil, two methods have been adopted with much advantage. One consists in presenting, in a short space, by means of critical and analytical reviews, the really important matter of all publications, periodical or otherwise,—a plan on which this Journal is now conducted; and the second method, adopted by many learned societies, in publishing, not at regular periods, but only when valuable papers have sufficiently accumulated. The Medico-Chirurgical Society of London has embraced the latter mode, and the numerous volumes of its Transactions bear testimony to its comparative superiority, notwithstanding the charm of novelty is frequently wanting.

We have already noticed many of these volumes with commendation, and shall now present an analysis of the last publication, which, as a whole, is excellent, although nothing very striking is presented to our attention.

The first paper is from J. H. James, Esq., surgeon of the Devon and Exeter Hospital, and contains the detail of a *very interesting case of an aneurism of the External Iliac Artery;* the tumour being situated just above Poupart's ligament, and eventually occupying all the fossa of the Ilium. At first, the symptoms were so peculiar and obscure, that the patient was thought to be labouring under a disease of the hip joint, the surgeon not perceiving any swelling, and the patient not complaining of any peculiar sensations at the actual seat of the disease. This was his condition when admitted into the Devon and Exeter Hospital on the 7th of May, 1829, after he had been ill four months. In a month, the tumour was well developed, and increased rapidly; there was no marked pulsation in the tumour, and none in the femoral artery. "The want of pulsation," says Mr. James, "appears to me to be no proof of want of circulation through the artery below the sac, for I am much disposed to believe that the blood, in this case, may flow through it, much in the same way as it does through veins; the impulse of the heart being lost in the one case on the small arteries, in the other, on the sides of the sac."

Brasdor's operation, revived by Mr. Wardrop, was performed on the *2d of June*, 1829: the crural artery being secured about half an inch below Poupart's ligament. *Four hours* after the operation, the patient was tranquil, and the bulk of the tumour appeared to be less. At 9, P. M. there was a diminution by measurement, of not less than three quarters of an inch. *June 3d*, the patient was doing well. *June 4th*, some inflammation of the wound from confinement of matter, which was relieved by removing the dressings. The temperature of the limb has been uniformly good, no numbness or inconvenient feeling; health good, except debility: the diminution in the measure of the tumour was fully an inch. From this day, however, the tumour began to increase. On the 12th there was some disposition to point. On the 24th the integuments were tense and shining; there was considerable pain, but the general health had not suffered. The tumour increased rapidly in all its dimensions, and as sloughing was now threatened, it became necessary to interfere, to save the patient, if possible. The operation *ultra tumorem*, having failed, (the reason of which was afterwards revealed by dissection,) it was determined in consultation to secure the aorta as affording the only possible chance of safety. This operation was performed on the 5th of July. We shall detail the steps of the operation with a view of exhibiting, practically, some of the difficulties and dangers of which all must, in some measure, be aware. The patient's shoulders were slightly raised, the bowels having previously been thoroughly emptied. The incision, through the integuments, was made over the linea alba, and extended from an inch above the umbilicus to two inches below. A small opening was scratched through the tendons, and the peritoneum opened nearly to the same extent as the external wound. This first part of the operation was somewhat impeded by very copious bleeding from the superficial vessels. As soon as the division of the parietes was effected, the viscera protruded, and the efforts of the poor fellow continuing strong, the operator soon found himself embarrassed with almost the whole of the bowels; nearly all the colon, and a great part of the small intestines being pushed out, and presently quite distended with flatus, a circumstance frequently remarked in the operation for strangulated hernia. The aorta was found without difficulty, pulsating strongly, but surrounded with dense cellular substance, and a strong peritoneal covering. The operator, embarrassed by the coils of intestine, in which his hand was buried, found it particularly difficult to force the nail and finger under the aorta. The wound was enlarged, but to little purpose. The point of an aneurismal needle was cautiously introduced, but when it reached the other side, the handle, which unfortunately was of wood, broke. The broken part was withdrawn for fear of injuring the intestines. With some additional difficulty the finger, with Weiss' instrument upon it, was conducted under the artery, but even after this was effected, it was by no means easy, with the best assistance of his colleagues, for the surgeon to extricate the short needle bearing the ligature, so much did the intestines interfere with every kind of manipulation. When the ligature was underneath, Mr. James kept the intestines out of the way with the fingers of both hands, and placed one thumb on the vessel, whilst Mr. Luscombe drew the ligature first on the thumb and then on the artery; in this way nothing extraneous was included within the ligature. The ligature was tightly drawn and cut close: the tumour became flaccid; and at the same time the patient complained of deadness in the lower extremities. The intestines, from their inflated condition and the tension of the muscles, were with difficulty restored. The wound was closed by the quill suture, adhesive straps, and a bandage. The patient suffered much during the operation and was at times extremely faint. Brandy and laudanum were given: he complained of great pain in the lower limbs, which on the aneurismal side increased to agony and continued till he died. He had also pain in the head and intolerance of light. The temperature of the lower limbs was maintained as much as that of the trunk, but it fell in both, and about four hours after the operation the patient expired, complaining of the agonizing pain in the leg, chiefly at the knee.

Post mortem.—The tumour was considerably collapsed; a quantity of coagulated blood was found in the abdomen, which issued from the wound in the parietes, or from a small vessel in the mesentery, opened by the broken handle of the aneurismal needle. The intestines were uninjured; the aorta was firmly embraced five lines below the inferior mesenteric artery, and eleven lines above the bifurcation. The aneurismal tumour extended from the upper part of the thigh, to the side of the vertebral column, and filled the whole of the ilium. The ilium was bare and scabrous, and with the pubis, was absorbed nearly through to the acetabulum, perhaps accounting for the symptoms of diseased hip. The outer parietes of the tumour were very thin; and the peritoneum adhered most firmly to its anterior surface. The common iliac on the affected side could be traced to its division; the external iliac was immediately implicated in the tumour, ran along its anterior surface, and could be traced broad and flat, about two-thirds its length, at which point it was abruptly lost. On opening the sac, no traces of the posterior part of the artery could be found at this point, but about an inch and a half lower down, it was again recognized, forming a pouch, out of which proceeded the femoral arteries. In the aorta, there were some diseased spots, but the lower part of the external iliac was thickened and diseased in the highest degree. Below the sac, the external iliac did not terminate in the common femoral as usual, but gave off two trunks of nearly equal size, and from the inner, which corresponded with the profunda, the epigastric was given off. The ligature below the tumour had been applied to the superficial femoral about half an inch below the point which corresponded with the situation of the epigastric. The artery was obliterated at the ligature. In the aorta the appearance of clots above and below the ligature was imperfect.

Dissection thus revealed why Brasdor's operation was here unsuccessful: while the beneficial effects arising from the obliteration of one large vessel proceeding from the aneurismal sac, while another of nearly similar dimensions remained pervious, confirm, in our opinion, the correctness of the principles on which this operation is founded.

As to the propriety of the second operation, there will be a difference of opinion; but we are not among those who think a surgeon should shrink from responsibility when it is *possible* life may be preserved by a dangerous operation. Let surgeons after deliberate examination and candid consultation determine that a disease will be soon and unavoidably fatal, and that an operation properly executed and defensible on scientific principles will afford a chance of escape, it is the surgeon's duty, in our opinion, to operate, if the patient, after a candid statement of the case, consent.

Account of the removal of a tumour situated on the cheek, by James Barlow, Esq.

Nothing very peculiar occurred in extirpating this tumour, which on examination was deemed an example of medullary sarcoma, excepting that a profuse hemorrhage resulted at every incision, causing eventually complete syncope. There was no time allowed for securing the enlarged bloodvessels singly, but the surgeon instantly and firmly grasped the tumour between the ends of his fingers, by which the bleeding was repressed; the woman revived, and the operation was carefully finished. The cavity of the mouth was not exposed, although from the edge of the masseter muscle to near the corner of the mouth, the lining membrane was exposed and was only a line in thickness. The patient recovered with little deformity; and no contortions or paralysis supervened.

Mr. Barlow relates a most important case, as a sequel of the former, in which he lost a patient instantaneously, while attempting to extirpate a tumour on the side of the neck, from the *absorption of atmospheric air through a patulous vein.*

To dangers of this character, the attention of the profession has of late years been called, particularly by Professor Dupuytren, of Paris, and Professor Mott, of New York. "On the 19th of November, 1822, a fine young woman, (Alexandrine Poirier,) came to the Hotel Dieu, for a tumour of some size, situated on the posterior and lateral part of the neck. From its hardness, renitency, and insensibility, M. Dupuytren ascertained that it was of a cellulo-fibrous nature, and proposed its removal, to which the young woman consented. The operation was performed on the 22nd of November, with all the skill and dexterity of that celebrated surgeon. No arteries were cut, that required a ligature, and consequently there was very little hemorrhage. Neither were there any muscles or large nerves divided. Just, however, as he was proceeding to separate the last shreds of attachment, and turn the tumour out, he was surprised to hear a somewhat prolonged hissing noise, similar to that produced by the re-entrance of air into a vessel from which it had been exhausted. The operator stood for an instant astonished, and observed, that were it not for the distance of the knife from the air passage, he would have thought that he had made an opening into it. He had scarcely said the word, when the young woman cried out she was dying, and instantaneously dropped down on the floor a lifeless corpse, to which all their efforts could not restore the slightest symptom of animation. This happened in the presence of nearly 400 spectators, and the body was examined the next day, in the presence of full as many, with the most rigorous minuteness. Every part of the body was carefully dissected, but there was not a particle of morbid structure any where to be found. An examination of the heart disclosed the cause of the melancholy catastrophe. The right auricle was distended like a bladder with air, which rushed out when cut open without any mixture of blood. Fluid blood was found in the other cavities, as also in the different vessels. Great quantities of air were found in all the vessels. There was no other unnatural appearance in any part of the body."

The inference drawn from this occurrence was, that air had rushed in through one of the veins of the neck, (the divided orifice of which probably remained patulous from the diseased state of the parts,) and thus caused instant death. It would seem to prove, that the heart acts as a sucking, as well as a forcing pump, otherwise it cannot be explained how air should pass from a cut vein in the neck, to the right chambers of the heart.

Dr. Mott thus alludes to his case: "In an attempt which I made to remove the parotid gland, in an enlarged and scirrhous state, the facial vein where it passes over the base of the lower jaw, was opened in dissecting the integuments from the tumour, in the early stage of the operation, before a single artery was tied. At the instant this vessel was opened, the attention of all present was arrested by the gurgling noise of air passing into a small opening. The breathing of the patient immediately became difficult and laborious, the heart beat violently and irregularly, his features were distorted, and convulsions of the whole body soon followed to so great an extent as to render it impossible to keep him on the table. He lay upon the floor in this condition for near half an hour, as all supposed, in articulo mortis. As the convulsions gradually left him, his mouth was permanently distorted, and complete hemiplegia was found to have ensued; an hour or more elapsed before he could articulate, and it was nearly a whole day before he recovered the use of his arm and leg. From a belief that these effects arose from the admission of air into the bloodvessels, which was not doubted by any person present, I instantly called to mind a set of experiments which I made some twenty years since upon dogs, by blowing air into the circulation, by inserting a blow-pipe into a large superficial vein upon the thigh, and was forcibly struck with the similarity of result."

Mr. Barlow states that his patient was a delicate married lady who was suffering from a hard tumour which occupied the whole lateral portion of the neck, and had become by its weight and bulk, insupportable. She insisted on having an operation performed. On the day appointed "I began the incisions with the scalpel a little below the ear, carrying them downwards over the tumour to the extent of not less than ten inches, and meeting in a line below the angle of the lower jaw, leaving a portion of integuments between each incision so as to form an ellipsis; when on proceeding to dissect the skin aside to get at the basis of the tumour, a sudden and unexpected hissing gurgling noise rushed obviously from a large divided empty vein, and the patient expired instantly, without either sigh, groan or struggle, and every effort to restore animation was useless. The instant the atmospheric air gained access and filled the vacuum, the hissing noise ceased, the patient expired, and the mouth of the vessel collapsed."

Mr. Barlow suggests from these and similar facts, that in operating on tumours about the neck, the surgeon should make suitable pressure on the superficial veins, or else secure them by a temporary or permanent ligature prior to division:—a suggestion of much importance. Pressure no doubt would be adequate, and should be preferred, as all are aware of the dangers resulting from the applications of ligatures on veins.

Case of ununited fracture of the Thigh-bone, successfully managed by Dr. Sommé, Principal Surgeon and Professor in the Civil Hospital, at Antwerp.

This was a case of five months duration, in which Dr. Sommé determined to employ a silver wire in place of the silk seton recommended by Dr. Physick, so that inflammation might be excited upon a larger surface than the seton could possibly affect, and the inflammatory action be kept up by changing the point of irritation.

"The left femur was broken obliquely about the middle, and the fractured extremities rode over each other, the lower inwards, and the upper end outwards. The patient being placed on his back and supported, I passed a long trocar and canula, at first downwards on the inner side of the upper fragment and made it pierce the skin behind and a little to the outside; the trocar was then withdrawn, and a silver wire passed through the canula and out at the posterior opening. The canula was then withdrawn, and being replaced on the trocar, they were introduced again above and on the outside of the lower fragment, and made to pass out at the same opening behind. The trocar having been removed, the other end of the wire was passed through the canula so that both ends were in contact behind, leaving a loop in front. I then made an incision in front, from one orifice to the other made by the trocar, and drawing the extremities of the wire through the wound, brought the loop between the fractured ends of the bone, and approximated the edges of the skin with sticking plaster."

The limb was secured in a well padded fracture box. At each dressing, the wire was drawn down, so as to depress the loop more and more into the flesh. The anterior wound cicatrized in about fifteen days; the posterior wound suppurated but slightly. Six weeks after the operation, which was performed the 12th of August 1828, the union was distinct, but the wire was not withdrawn till the 2d of October. The apparatus for preventing motion was continued until the middle of November. The external projection, in Nov. 1830, was nearly absorbed; the two ends were enveloped in a solid mass: the patient could support himself on the thigh without any pain, and merely complained of his knee, the motions of which were very limited. There was no apparent shortening of the fractured limb.

The next paper is from Dr. Benjamin G. Babington, detailing *some observations and experiments to prove the existence of a concrete oil as a constituent of the blood, particularly of the serous portion.* To it, he refers the peculiar colour of the serum of the blood. " The oil is of a deep yellow hue, is semi-solid and melts at the temperature of 90° Fahrenheit. It is lighter than water; its specific gravity being .918. From its solution in æther, it crystallizes by very slow evaporation, at a low temperature in radiated tufts. It burns with a brilliant light, has a faint and peculiar odour, resembling that of a wet bladder, forms soaps with the alkalies, and in its general characters resembles other animal oils. It is uniform in colour, general appearance, and in all its properties, from whatever kind of serum it be obtained. The only method by which I have succeeded in separating it from clear healthy serum, is by agitation with æther; though from milky serum in which it abounds, it may be obtained by means of alcohol, or by simple evaporation."

Next we observe cases of what may be termed *Phlebitis*, adduced by Mr. Lawrence and Mr. Holberton, as confirmatory of views, entertained by Dr. Robert Lee* and others, that Phlegmasia dolens depends on, or consists in, an inflammation of the veins of the lower extremity. We shall not offer any opinion on a point still the subject of discussion, but no one can doubt, that inflammation and consequent obstruction of the iliac and femoral veins may generally give rise to pain and tension from effusion of serous fluids in the cellular tissue of the limb without redness of the skin: but the question arises, do these symptoms designate the complaint termed Phlegmasia dolens? If so, this word should be abandoned, and that of Phlebitis be substituted, as expressive of the nature of the disease, and freeing it from the vague character which its present designation unavoidably perpetuates.

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* Dr. Lee's valuable paper was published in the last volume of the Medico-Chirurg. Transactions.

History of a case of Stammering successfully treated by the long continued use of Cathartics, by John Bostock, M. D.

Impediments of speech, says Dr. Bostock, are usually regarded as originating either in a physical defect of the organs which are exercised in the production of articulate sounds, or as proceeding from some cause more of a mental nature, as habit, imitation, or the like. On these views are founded the different modes of treatment. Dr. B. details a case which has led him to take a different view of this subject. We subjoin the important features for the reflection of our readers, as we shall not trouble them with any hypothesis, seeing that the reporter has himself declined the task.

A healthy and robust boy, between two and three years of age, and after having acquired considerable readiness in speaking, was suddenly affected with so great a degree of stammering as to be almost incapable of uttering a single syllable. Two eminent physicians, confessing their inability to propose any specific plan of treatment, advised, as the child was plethoric, a strong purgative. The effect was so favourable, that the purgative was repeated three or four times and with decided benefit. The complaint shortly recurred and was again subdued in the same manner. After this, by way of prevention and to render less medicine necessary, the boy was confined to a vegetable diet, and even this in but moderate quantities. This was rigidly enforced for several years, with an evident effect on his appearance, although he retained a due share of activity and vigour, and would enter into all the sports and exercises suited to his age. The complaint was thus kept at bay for eight years; symptoms of it always appearing on any relaxation in diet, or whenever the purgatives were too long delayed. When about twelve years of age, a relaxation of this plan of treatment was not followed by the usual unfavourable consequences: it was hence much neglected. At length, the complaint returned and was unusually obstinate, requiring a long and severe course of purgatives, which however was finally successful. During the last two years, any symptom of relapse has been obviated by moderate dieting and purging. The boy, who is now in his fifteenth year, may be said to be free from the complaint, and even possesses a considerable rapidity and volubility of enunciation. The purgative employed was generally calomel and jalap, followed by Epsom salts. On two or three occasions, some salivation was unintentionally excited, but it was not easy to determine whether this circumstance was productive of any advantage, as the relaxation of the bowels was cotemporary and proportional.

The Pathology of Hooping Cough, by James Alderson, M.D.

The object of the writer is to elucidate by post mortem examinations "the nature and seat of Hooping Cough." That we may do him full justice and at the same time exhibit the mode of reasoning adopted by too many of the pathologists of the day, in elucidating the nature of disease, we shall copy the result of his examinations in each case he presents.

The first dissection is that of an infant two years of age, which died with tonic and clonic convulsions from Pertussis. "There were no adhesions of the pleura, nor any fluid in the cavity of the chest; the lungs did not collapse, they contained much air which was with difficulty pressed out: in different parts of the lungs, but chiefly in the lower portions of all the lobes, a change of structure had taken place, which has been termed lobular hepatization; this was more evident in the middle lobe of the right lung, which was quite contracted to the size of the pancreas, and which it very much resembled in the sensation which it conveyed to the touch; the septa dividing the lobules were distinctly seen, and appeared perfectly healthy, the lobules themselves quite dense, and somewhat resembling the muscular structure of the heart;(!!)—several of the smaller tubes were much dilated, and lined with thick mucus. There was no appearance of inflammation in the trachea, or in the larger bronchial tubes."

No examination of the brain appears to have been made.

In the second case, a child 7½ months old, died with symptoms of dyspnœa, flushed face, purplish lips, &c.

Dissection forty hours after death. In the head the quantity of serum in the ventricles and under the arachnoid coat was rather larger than natural. The substance of the brain, of its natural consistence; the only morbid appearance was an irregular venous marbling of the medullary matter. In the chest, there was no trace of pleuritic inflammation. About one fourth of both lungs, towards their posterior and inferior part, was the subject of a morbid change; the structure was rendered very firm and dense; its limits were perfectly defined, the septa between the lobes constituting the boundaries. The portions in which this change had taken place were of a dull red colour, perfectly void of air, sinking instantly when put in water, and undergoing no change when thin slices were subjected to ablution in it. The individual lobules were firmer than they are often found in hepatized lungs; and the cellular membrane, between them, retaining its natural structure, produced a combination of looseness and density such as is usually observed in the pancreas. The remaining portions of the lungs were of a light colour, of an uniform texture, spongy and crepitant; but very little if any of the air pervading the cells could be expelled by the bronchial tubes. Most of the tubes were filled with a light yellow secretion, which, in the greater number had assumed a concrete form, having very much the character of fibrin; in others, it was in the form of a thick puriform mucus: where it occurred in a concrete form, it adhered, though slightly, to the lining membrane of the tubes. This membrane was generally pale beneath the false membrane, but in some places it was a little reddened; most of the divisions of the tubes were somewhat dilated; the concrete secretion which filled them, readily explained the difficulty of expressing air from the lungs. The heart was healthy; there was a white coagulum in the right ventricle. The abdominal viscera were generally healthy.

Louisa Cash, aged nine months, died with convulsions from hooping cough, March 4, 1829. Dissection revealed "no signs of pleuritic inflammation, no effusion. Both lungs had undergone the change so minutely described in the last case; the middle lobe of the right side, more particularly the seat of this morbid condition, much contracted, and quite impervious throughout to air. The lower portions of the other lobes on both sides were similarly affected; the remaining or upper portions of the lungs were crepitant, but did not collapse on opening the chest. The bronchial tubes, when cut open, appeared somewhat dilated."

Ann Jones, 3½ years old, died also from the effects of hooping cough; such as imperfect respiration, convulsions, &c. *Dissection.* "No adhesions in the chest, nor any effusions; the inferior portions of all the lobes in the peculiar state before described; the middle lobe of the right lung, as observed in former cases, quite contracted and changed. There was nothing in this case like membrane, but dense muco-purulent secretion filled the more minute bronchial tubes; the heart was quite healthy, except at the apex there appeared a small flattened cyst five or six lines in diameter, which contained a limpid fluid." No examination of the contents of the cranium.

The author observes that he has dissected other cases, in which the same changes have been perceived. He wishes to fix attention on the absence of pleuritic inflammation and effusion, on the healthy state of the cellular portion of the lungs, on the firmness and density of the affected lobules, exactly defined by the septa, on the spongy and crepitant (natural) condition of the remaining portion of the lungs, from which, however, very little air could be expelled by the bronchial tubes; on the thick muco-purulent or membranous secretion in the bronchiæ impeding the access or escape of air; and finally, on the dilatation of some of the bronchial tubes. Hence he infers, "that in this rapidly fatal *stage* of the complaint, an adhesive form of inflammation is set up in the different air cells at the same time, mucus is secreted in less quantity than natural, a fibrinous exudation takes place, and adhesion of the parietes of the cells is the consequence: whilst the cellular membrane, separating the individual lobules, retains its natural structure: a form of disease which exactly resembles croup in a different part of the respiratory apparatus."

To divest the above of all paraphrase, we should say the changes alluded to, were the result of *bronchitis*, affecting the remote ramifications of the bronchiæ, without wishing in any degree to countenance the rather undigested notions of the author, as to the adhesion of mucous membranes.

We feel much indebted to the author for the facts he has detailed; they confirm views very generally entertained that severe, and especially fatal cases of pertussis are attended by what was formerly termed, inflammation of the lungs, now, more specifically, bronchitis, and that such inflammation is often the immediate cause of death. But what light does this throw on the *nature* of hooping cough? Are we to infer that this affection is nothing more than an inflammatory affection of the bronchiæ? Such evidently is the conclusion of our author, and must be the conclusion of every one who, like him, confines his pathology to lesions of structure, and confounds diseased actions with their effects,—alteration of tissue. But if any one will consider the *peculiar* symptoms of pertussis; the sudden and paroxysmal character of the cough, the sonorous inspiration, the perfect intermission of all the symptoms, the absence of fever, the regularity of all the functions of organic and animal life during the existence of this complaint in a large proportion of cases, not to dwell on its supposed contagious character, or on its indisposition to affect individuals a second time, will find abundant reason to believe, that post mortem examinations alone have not yet elucidated, and probably never will elucidate its pathology. We would, moreover, embrace the opportunity of observing, that morbid anatomy is but *one* means, however valuable it may be, for establishing pathological and therapeutical principles: and however disgraceful it may be for any professional man at the present day to be ignorant of the effects of disease as revealed by the scalpel, still no correct pathology of any disease can be deduced from morbid anatomy alone. There are many diseases, and various important phenomena in all complaints to which our complex systems are liable, which are not in the least degree elucidated by antopsic examinations,—a fact itself fully confirmatory of the observations we have ventured to make.

A further inquiry into the comparative infrequency of Calculous diseases among sea-faring people, with some observations on their frequency in Scotland, by Alex. Copland Hutchison, F. R. S., &c. &c.

As appears from the title, this paper is supplemental to a former article on the same subject, and published in the 9th vol. of the Medico-Chirurgical Transactions. By statistical details, the author endeavours to substantiate the fact, which is singular and important, that calculus of the bladder is a very rare disease among sea-faring people. He also in a similar manner attempts to prove, contrary to received impressions, that the same complaint occurs more frequently in Scotland than in England. As no solution of these points is attempted, and no practical inferences made, we shall pass them by without further notice.

Practical observations on the healthy and morbid conditions of Stumps, by George Langstaff, Esq.

Mr. Langstaff has been for twenty years surgeon to the Cripple-gate workhouse, where he has enjoyed extensive opportunities in operative surgery, and the permission of inspecting the bodies of those who have died there. Of these privileges, he appears to have availed himself, and in the present paper has given a long series of dissections of stumps to illustrate the changes which result from amputation of the upper or lower extremities, and hence to determine the best method of forming a "good stump,"—capable of receiving any mechanical assistance. After describing what he believes to be the healthy process by which the extremity of the bone becomes rounded, the soft parts adherent and the cicatrix formed, he observes,

"Should the surfaces of the amputated part not regularly unite by the first intention, or by the second, and there be inflammation affecting the divided nerves, then a mortification is established, which occasions the face of the stump to ulcerate, or mortify; frequently causing a portion of the extremity of the bone to project, which occasionally becomes carious and should be taken off. Sometimes osseous deposition takes place, round the edges of the sawn bones, and exostosis is produced; sometimes a spiculum of bone projects horizontally, generally taking the direction of the artery, vein and nerves of the limb, which thus become implicated in the bony deposit; and sometimes, I have found a large spiculum of bone with a very sharp point taking an oblique direction, and connected with a muscle, occasioning morbid changes in its fibres, and being a source of great suffering to the patient. In all such stumps, I have invariably found the nerves greatly enlarged at their extremities, giving them a ganglionic appearance, and generally firmly adherent to the surface of the stump, and frequently in union with spicula of bone, in the manner I have just described. On cutting through these bulbous extremities of the nerves, there are no signs of enlargement of their natural structure, the thickening appearing to have been occasioned wholly by the deposition of lymph, the effect of inflammation in the cellular tissue of the neurilema."

On reviewing the above extract, the opinions of our author will not be very evident, but taking it in conjunction with the practice afterwards recommended, he appears to believe, that, besides irritation from too free osseous deposit, and from irregular spicula of bone injuring nerves, muscles, &c., an inflammation of the divided nerves, giving rise among other consequences to a ganglionic enlargement of their extremities, so universally noticed in wounds of these parts, is the source of a morbid action which occasions the stump to ulcerate or to mortify, and the bone to become carious. For this opinion we can discover no foundation in physiology, pathology, or therapeutics. Inordinate inflammation of the trunks of the nerves is no rare occurrence, and when acute or even chronic, is sufficiently terrible from the intense pain, and the tonic and clonic convulsions more or less extensively excited, without being thus rendered the source of phagedenic and gangrenous inflammation. On the contrary, they possess great powers of organic life, and resist the destructive consequences of inflammation to a great degree in their own tissue at least, and there is no reason to suppose that they, in their excited state, cause any injurious change in surrounding tissues. Mr. Langstaff details a very interesting case in which amputation below the elbow was performed, in consequence of the arm being altogether useless and the seat of severe pain, which impaired the general health of a female who two years previously had severely injured this limb by a fall. The stump did not heal favourably—the patient suffered great agony, and became extremely nervous. "When I saw her, the surface of the stump presented an unfavourable appearance, the skin covering the ends of the radius and ulna was very thin, excessively vascular, and the ends of these bones seemed likely to cause its absorption. There was also a constant state of convulsive action of the muscles of the stump, accompanied with agonizing pain. She was hysterical, and the paroxysms were frequent; the spasmodic affection of the muscles of the arm became more evident, and a pulsation almost aneurismal could be seen and felt at the extremity of the stump in the situation of the radial and ulnar arteries."

Several months were passed in vain attempts to improve her general health and to relieve the pain; Mr. Langstaff, "having seen, in several cases, symptoms similar to these, caused by the extremities of the nerves becoming ganglionic," recommended amputation above the elbow, which was agreed to. "I performed it by the flap operation, and previously to securing the arteries, *I drew out each nerve to the extent of half an inch from the surface of the stump, with a tenaculum, and cut through them to prevent their interrupting the progress of cicatrization of the integumental parts*, which I have done in other instances with success, and I was astonished that the division did not occasion greater pain than was complained of by the patient."

The patient was relieved of her pain, spasms, and convulsions, and with improved health and a good stump, was able to gain her livelihood.

To us, it appears that this case was originally a neuritis, not relieved by the first amputation because the operation did not extend above the diseased portion of the nerves, but relieved by the second, when the section was made through healthy nerves. We must condemn the practice as well as theory of Mr. L. It seems to us barbarous, we cannot use a milder expression, after the severe operation of amputation above the elbow, to pull out each nervous trunk separately with a tenaculum and then divide it, for fear ganglions might form, or the progress of cicatrization be prevented!!—Fears which are altogether useless, for ganglions are the common result of wounded nerves, or unfounded, as cicatrization is not prevented by inflamed nerves. Mr. L. recommends very decidedly the flap operation, as superior to the circular; having witnessed mischievous results from the latter mode, and having always succeeded in making a sound and useful stump where he has employed the former.

Aneurism of the external Iliac Artery, in which a ligature was applied to the common iliac artery, by Philip Crampton, M. D., &c. &c.

In the fourth volume of this Journal, p. 178, we have presented our readers with an account of the first case of aneurism for which the common iliac artery was secured. This was successfully accomplished by our distinguished surgeon Dr. Mott, of New York, and we are happy to find that due credit is given to him by Mr. Crampton. Mr. C. has operated in a second case at first with apparent success, but the patient subsequently perished from hemorrhage; the cause of which, we regret to add, resulted from the use of an animal ligature, as evinced on dissection.

The patient, P. McGowan, aged 30 years, hitherto healthy, was admitted into the General Hospital, Dublin, on the 8th of July 1828, with two aneurismal tumours, one about the size of a pullet's egg in the right ham; the other in the right iliac region, extending from about three inches below the crural arch on the right side, to within about three inches of the umbilicus. The tumour was divided by a furrow in the line of Poupart's ligament, into two portions. After suitable preparation, the operation for securing the common iliac artery was performed by Mr. C. on the 18th of July 1828. The first incision commenced at the anterior extremity of the last false rib, proceeding directly downwards to the os ilium, it followed the line of the crista ilii, keeping a very little within its inner margin, until it terminated at the superior anterior spinous process of that bone; the incision was therefore curvilinear, the concavity looking towards the navel. The abdominal muscles were then divided to the extent of about an inch, close to the superior anterior spinous process, down to the peritoneum. Through this opening and between the fascia iliaca and the peritoneum, a probe pointed bistoury was passed on the finger as a director, and the abdominal muscles separated from their attachment to the crista ilii, so as to admit the hand. Detaching the very slight connections existing between the peritoneum and the iliac fascia, Mr. C. was able to raise up the peritoneal sac with its contained intestines on the palm of his hand, and thus obtained a distinct view of all the important parts beneath, as the parts were unobscured by a single drop of blood: there lay the great iliac artery, nearly as large as the finger, beating at the rate of 120 in a minute, its yellowish white coat contrasting strongly with the dark blue of the iliac vein which seemed double its size: the ureter in its course to the bladder, lay like a white tape across the artery, but in the process of separating the peritoneum, it was raised with that membrane to which it remained attached. The fulness of the iliac vein varied, sometimes rising above, sometimes sinking below the level of that artery. The forefinger of the left hand was passed under the artery, which with a little management was easily separated from the vein; and on the finger, a common eyed probe furnished with a ligature of moistened catgut was passed under the vessel and secured by the surgeon's knot. All pulsation ceased in the tumour; the artery was full and throbbing above the ligature, but empty and motionless below. The external wound was now closed, the operation having lasted twenty-two minutes.

The tumour soon diminished one third: the pulse became full and bounding, so that v. s. to ℥ xx. was practised at 7 P. M. At ten o'clock the same evening, the patient was free from pain, tranquil, and his pulse at 88. The limb, with the exception of the toes, was warm; the vena saphena full.

On the 19th doing well, pulse 88, toes warm but not so warm as those of the left foot. On the 20th uneasy from pain and rumbling in the bowels, relieved by a cathartic of oil of turpentine and castor oil. An obscure pulsation is now, fifty hours after the operation, discovered in the tumour. 21st. Pulsation more evident but none in the femoral artery, nor in the aneurism in the ham, which is diminished to half its bulk. 22d. Pulsation continues, and some thrill noticed. No particular change until the 26th when the ligature came away, and the patient on turning in bed, suddenly felt a severe pain in his thigh and knee;—the forepart of the thigh was numb. It lasted for ten minutes. On the 27th much the same: On the 28th complained less, asked for nourishment, wound nearly healed; the tumour diminished by one third, but the pulsation as strong as before the operation. At 6 P. M. while sitting up to take some gruel, the blood suddenly gushed from the wound, the patient fell backwards, and expired in less than a minute.

On *dissecting* the body next day, the common iliac artery at about three fourths of an inch from the bifurcation of the aorta was lost in an oblong tumour, which terminated upon, but did not communicate with the sac. On opening the tumour, about half an ounce of greenish pus was discharged, and the artery was discovered somewhat contracted and marked where the ligature had been applied. On injecting the artery from above with air or water, the fact was established that the catgut ligature had been softened and thrown off, before the obstruction in the artery or the coagulation of blood in the aneurismal sac had been completed. A small abscess had formed in the place occupied by the ligature. On slitting up the artery, the internal and middle coats were found to be completely divided, and small portions of lymph adhered to its internal surface. The popliteal aneurism was far advanced towards a cure; the contents of the sac were quite solid; the tumour reduced to about the size of a walnut: the artery, for six inches above the sac, was filled with a firm coagulum.

Mr. Crampton infers that securing the common iliac artery is not only a feasible, but a very easy operation when executed by making the external incision high up as in the present case. He believes the difficulties encountered by Dr. Mott, arose from his incision being *too low.* He also believes that the aorta could be secured with the same facility, provided it should ever be deemed advisable to perform this operation, the propriety of which several facts would seem to warrant under peculiar circumstances.

On the Glanders in the human subject, by John Elliotson, M. D.

Dr. Elliotson met with two cases of very singular and fatal disease, presenting a combination of phenomena with which he was unacquainted, and which induced in his mind a suspicion that some morbid poison had been applied. After much investigation and comparison with other cases observed in London, with some published by Mr. Travers in his work on constitutional irritation, and others published in Hufeland's Journal, he has concluded that they were the result of inoculation from animals affected with glanders, and that they presented all the peculiar phenomena of this disease as it exists in the lower animals: thus increasing the hitherto small list of diseases which can be propagated from the lower orders of animated beings to the human race. The paper is long and interesting; we shall content ourselves with an extract, detailing the symptoms in one of the patients, that the disease may be recognized if met with by any of our readers, and its cause if possible be detected.

"Thomas Marshall, æt. 17, was admitted into St. Thomas' Hospital under the care of Dr. Roots, March 19, 1829. The upper half of the face, including the eyelids and the nose, with the portion of the cheek on each side, especially on the right, was greatly tumefied, so that the eyes were closed. The eyelids and swollen portions of the cheeks were red and hot, dry and shining; but the nose was dark coloured, and on its right half, black, cold, and senseless. From around the grangrened portion of the nose, and some other points, a little pus was oozing, as well as a thin dark coloured fluid; and, *from the nostrils a thick discharge of a deep yellow colour, here and there a little bloody, was taking place*, exceedingly copious from the *right* nostril. Several *hard* phlyzacious pustules existed on, and immediately around the nose, still principally on the right side, and in various parts of the trunk and extremities. Tumefactions were observed in both forearms and on the back of the right hand. Some of these were hard, others softening into suppuration. The temperature was high; the pulse 136 and sharp; the tongue white and rather dry. The respiratory murmur was indistinct at the right lower part of the chest, and the respiration quick and difficult. The gums were slightly turgid. It was stated, that twelve days previously, (Saturday March 7th,) he had been attacked by pain in the right hypochondrium, extending up the chest, dyspnœa, and rigors: that he took ten grains of pilula hydrargyri, and the next day felt quite well. The pain and dyspnœa, however, returned on the day following, but subsided at the end of the week, under the use of leeches and purging. On the Sunday, five days before his admission, a pimple was said to have appeared on the right side of his nose; while this increased and suppurated, the surrounding parts swelled and grew red, and the state of things became much as I have described. Fourteen ounces of blood were taken from the arm, and became both buffed and cupped. Some of the tumefactions were cut into, and large quantities of pus discharged. Lint, soaked in a solution of the chloride of soda, and covered with a poultice of stale beer grounds, was applied over the nose fresh every hour, and a common poultice to the abscesses which had been opened. An ounce of castor oil was given, and the diet restricted to slops, milk, and arrowroot. Late in the evening two greenish and very offensive stools were passed involuntarily, and a little delirium was observed. Tumefactions had begun upon both legs, one upon the left hand, and one upon the right elbow. The next morning, more tumefactions were seen on the extremities, red as all the others had been: but the others had now acquired a purple tint, and the wounds looked dark. The forehead was swollen and red, and more pustules had formed upon the face. There was constant agitation, frequent delirium, profuse diarrhœa, and there had been no sleep. Mistura cretæ composita was prescribed, sixteen leeches applied to the temples, and strong beef tea added to the diet. In the evening, the diarrhœa was checked, but the upper lip had grown very dark; sordes encrusted the teeth, the surface, still hot, was covered by a profuse sweat, and many new, hard pustules were seen upon the trunk and extremities. The pulse had become soft and was small and rapid. Twenty-five minims of tinctura opii were given in the first dose of the mistura cretæ composita, and one grain of the sulphas quininæ every four hours prescribed. The oleum terebinthinæ was substituted for the solution of the chloride of soda. He was calm after taking the opium, but about four o'clock in the morning was observed to breathe with more difficulty, to be unable to swallow, and to be constantly delirious; and from that time he sank gradually and expired at six.

"I was not present at the inspection, but understand that there were proofs of a violent pleuro-peripneumonia in the lower part of the right side, and that two ounces of healthy pus were found between the adherent lung and the diaphragm. A dark red patch existed in the stomach, and several at irregular distances throughout the intestines. The mucous membrane of the stomach was very lacerable at that spot. The other viscera, and all the contents of the head, as well as the veins of the extremities, were reported healthy: but the mucous membrane of the nostrils was not examined. The abscess which had been opened on the back of the right hand, communicated with the joint of the metacarpal bone of the middle finger, but those on the arm did not communicate with the elbow."

An account of the parts concerned in the Aneurism, for the cure of which Dr. Stevens tied the Internal Iliac Artery, at Santa Cruz, in the year 1812, by Mr. Richard Owen.

In the 5th volume of these Transactions, Dr. Stevens published his account of this case, and of the successful issue of the operation for securing the internal iliac artery, then for the first time performed. His patient recovered, and ten years after died of some pectoral disease. Dr. Stevens had the privilege of examining the body, and ascertained that the internal iliac had been secured and was now obliterated. The preparation he conveyed last year to England and submitted it to Mr. Owen for minute examination: the result of which is now published.

"The operation was performed on the 27th of December, 1812. An incision about five inches in length was made on the left side, in the lower and lateral part of the abdomen, parallel with the epigastric artery, and nearly half an inch on the outer side of it; the peritoneum was separated from its loose connection with the iliacus internus and psoas magnus; it was then turned inwards to the division of the common iliac artery. The internal iliac being found, and compressed between the thumb and finger, the tumour ceased to pulsate and began to disappear; a ligature was passed round the vessel by means of a probe, and it was tied about half an inch from its origin. The tumour disappeared almost immediately after the operation, and the wound healed kindly. About the end of the third week, the ligature came away, and in six weeks the woman was perfectly well. The operation was neither very difficult, nor very tedious; the woman did not complain of much pain, nor did she lose an ounce of blood. There was no difficulty in avoiding the ureter; when the peritoneum was turned inwards the ureter followed it."

On examination, the internal and external iliac arteries were given off in the usual manner. The internal iliac was found completely obliterated where the ligature had been applied, but the obliteration had not extended to the origin of the external iliac; as the ilio-lumbar artery appears to have arisen just above the situation of the ligature. In the state of a ligamentous chord, the internal iliac descended for the space of an inch, and then suddenly resuming its natural diameter, it again became pervious, and so continued for the extent of half an inch; the glutæal artery arose from the lower part of this space; a sacro-lateral vessel from about the middle; and the obturator artery from the upper part of it. The latter vessel was, however, entirely obliterated, but the sacro-lateral artery was pervious, of the size of a crow-quill, and passed inwards to the second sacral foramen; whilst the glutæal artery, of its natural size, received close to its origin two vessels as large as the preceding, given off from the sacro-lateral artery, near the third and fourth sacral foramina of the left side. The anastomoses of the sacro-lateral arteries with each other and the sacro-median, were large and tortuous. Immediately after the origin of the glutæal, the ischiatic, obliterated and chord-like, passed on to the lower part of the ischiatic notch; the sanatory processes set on foot by the application of the ligature being uninterrupted by the enfeebled current of blood, passing from small canals to a large one. The glutæal artery was in a healthy condition, and of a natural size; but an elongated tumour three inches and a half in length, and about two-thirds of an inch in breadth, between the tuberosity of the ischium and the great trochanter, indicated the true seat of the disease in the sciatic artery, and not in the glutæal, as was believed. The tumour consisted of condensed cellular membrane and the peculiar fibrous arterial coat, and contained a dark coloured, granular, not lamellated coagulum, which, when removed, showed the internal surface of the sac to be irregular. From the ischiatic notch to the tumour, the artery was completely impervious, its texture altered, and the remains of its cavity filled with indurated and partly calcareous matter. From the lower part of the tumour, the sciatic artery was continued down the posterior part of the thigh of an uncommon size, nearly as large as the femoral artery in front; its caliber did not correspond with the apparent magnitude, as its coats were much thickened. It was obliterated for about the space of an inch below the sac, and became pervious after receiving an anastomosing vessel from the arteria profunda.

"Sufficient has been observed to place beyond doubt the existence and cure of an aneurism, situated as originally described, and the obliteration of the internal iliac artery, in consequence of the application of the ligature at the part stated in Dr. Stevens's Memoir."

This operation on the internal iliac is said to have been performed five times. The second operation was effected by Mr. Atkinson, of York, and recorded in the 28th vol. of the London Medical and Physical Journal, and in Cooper's Surgical Dictionary. The operation was performed on the 12th of May, 1817, and for many days the patient was entirely relieved; but about the tenth day, coagula, and finally blood, were discharged by the wound, under which the patient sunk exhausted. On dissection, the internal iliac was found ulcerated through where the ligature had been applied; all the coats were diseased, and in the lower part where the artery was wider, and the coats evidently more diseased, the orifice was occupied by a coagulum of grumous blood, which being removed, exposed more fully this open mouth, which again, after a short interval, was filled with more fluid ichor from the sac below. It was manifest, that this had been the source of the hemorrhage, from the sac up the artery into the pelvis, owing to the want of obliteration in the lower portion of the artery.

The third case is noticed in Averill's Operative Surgery, and in Cooper's Surgical Dictionary. The report is not accompanied by details, but the artery is said to have been successfully secured by an army surgeon in Russia.

The operation has been performed by Mr. Thomas, of the island of Barbadoes. The preparation has been deposited by Sir Astley Cooper in the museum of Guy's Hospital.

The fifth case is reported by Dr. J. Pomeroy White, of Hudson, state of New-York, in the American Journal of the Medical Sciences, vol. 1st, and noticed in the 5th volume of this Journal. The patient, it will be recollected, was sixty years of age, and of intemperate habits. He recovered.

Art. II.—JURIDICAL EXHUMATIONS.

Traité des Exhumations Juridiques, et Considerations sur les Changements physiques que les Cadavres éprouvent en se pourrissant dans la terre, dans l'eau, dans les fosses d'aisance, et dans le fumier: Par M. Orfila, *Professeur à la Faculté de Paris, Membre de plusieurs Sociétés savantes, nationales et étrangeres, et par* M. O. Lesueur, *Docteur en Médecine, agrégé près la Faculté de Médecine de Paris, &c. Ouvrage orné de cinq planches, dont quatre coloriées. Tome* Ier. *pp.* 388. *Tome* IId. *pp.* 384. 8*vo. Paris,* 1831.

Of the numerous contributions to Medical Jurisprudence for which we are indebted to the labours of M. Orfila, the present will not, we are persuaded, be considered as the least interesting or important. A knowledge of the spontaneous changes which the human body undergoes subsequently to interment, and the succession and periods in which they occur, is all important to the medical jurist, to enable him when called into a court of justice, to decide correctly many of the questions which may, in certain cases, especially in accusations for murder, be submitted for his consideration. The investigation and accumulation of the facts from which this knowledge is to be derived, could not have been undertaken by an individual who possesses, in a greater degree, all the requisite qualifications, than M. Orfila, or one, upon the correctness of whose statements, confidence can be more implicitly relied. As the work before us, therefore, interests every member of the profession in this country, while in all probability, it will fall in the hands of but few, we hasten, at this early period, to lay before our readers an analysis of its contents, or at least of the general conclusions to which the author has been led from his numerous observations. The first volume of a treatise on the same subject, by Dr. Güntz, was published in Leipzig, in 1827,* and we had at first intended to compare the statements of the latter with those of M. Orfila, but finding that this would occupy more space than it is proper to appropriate to a single review, we have concluded to confine ourselves on the present occasion solely to those of the French professor.

The work of M. Orfila is divided into four sections. The first of which relates to the legislation in reference to juridical exhumations, the dangers with which they may be attended, and the precautions to be taken in order to avoid those dangers. We cannot stop to notice either of these points, but must proceed to the second section, in which those physical changes are considered which the varous organs of the body undergo in the grave, and the state in which these will be ordinarily found at the several periods subsequent to interment at which they may be examined.

The first chapter of this section treats of the physical changes experienced by the tissues of a dead body when it is buried in a separate grave. The author details minutely the appearances presented by thirty two bodies examined at various periods after interment, from which are deduced the following general results.

The epidermis is very rapidly destroyed. Soon after interment it becomes reduced in thickness, and softened, and generally adheres intimately with the clothing of the corpse or with the earth which immediately surrounds the body when it has been buried naked. At those parts from which it has not been removed with the earth in opening the grave, it is wrinkled, raised from the surface, and may be readily detached in thin semi-transparent shreds, and is of a grayish white colour—even on the abdomen, where the cutis is green. The epidermis of the palms of the hands and soles of the feet, where it presents the greatest thickness, is drier, more dense, of a white colour inclining to yellow, and very much wrinkled, resembling that on which a poultice during life has for a long time been applied. Occasionally its inner surface is partly coloured red or green, by a serous fluid, which may be washed off, when the epidermis becomes white. No order is observed, in which the different parts of the body become despoiled of their cuticle. At a somewhat later period, those portions of the epidermis not yet separated from the body, undergo a very remarkable alteration. They frequently become converted into a greasy substance, and adhere more intimately to the earth or clothing by which the corpse is immediately surrounded; forming a layer of a reddish or brown colour, composed of numerous minute rounded elevations in close contact. Sometimes in place of this layer we have a viscid and fatty mucus, and at others a dry crust like that of cheese. In either case, the parts on which the epidermis adheres is frequently covered with a white flocculent mould, resembling in some cases, white jelly. At a still later period, the epidermis has entirely disappeared. If, however, it has been detached during life at any part, by an effusion of serum beneath it, it may then resist putrefaction, and will present after many months nearly all its ordinary characteristics.

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* Der Leichnam des Menschen in Seinen Physichen verwandelungen, Nach Beobachtungen und Versuchen Dargestellt.

The nails soften, acquire a grayish colour, and are deprived of their elasticity. They lose by degrees their semi-transparency, and may be easily detached, even when the body has been interred only twenty-four or thirty hours. The skin beneath them then presents a smooth, moist, and bright red appearance, resembling currant jelly. At a later period, the nails become dry and detached from the fingers.

The hair resists strongly decomposition. M. Orfila has always found it entirely unchanged, even on bodies that had been buried for many years.

The cutis during the first days after interment is of a yellowish colour, inclining somewhat to a rose; here and there, however, it presents a greenish, reddish, and violet tint. It is, as yet, but little softened, and in no degree corroded, and scarcely changed from its natural state. In general it is more humid on the posterior part of the trunk than in any other part. At a later period, it is frequently covered at certain parts, with small sand-like granulations, formed of the phosphate of lime; it is now almost entirely separated by putrefaction from the back, forming a kind of sac, like the skin on the back of the toad. Its thickness is not yet sensibly diminished, except perhaps on the eyelids, where it is readily torn; its structure is easily recognized, and in no part is it changed into fat. At a still later period, it commences to dry, becomes thinner, and assumes a colour which varies from a fawn to a deep yellow, almost orange, or to a brown, sometimes very deep. It is covered by the coating, and here and there by the mould, which were described when speaking of the epidermis. This mouldiness is never found on the parts where the greatest humidity exists, as on the back, but is in considerable quantity on those which are ordinarily dry. The dessication of the skin goes on daily; the latter becomes as it were tanned, so, that when we strike with the handle of the scalpel upon any part of the body, a sound is heard somewhat similar to that produced by striking upon a pasteboard box. If an incision be now made into the cutis, the edges present the appearance of grayish leather, and we already detect an evident tendency to saponification; this tendency is remarked especially at those places in which the subcutaneous cellular tissue is changed into fat; it is also at those parts that, in general, the skin is the least changed.

The rapid destruction of the skin around the anus, is occasioned by the facility with which this part is attacked by the larvæ of insects. The adhesion of the cutis to the subjacent parts varies; where it is attached to the bones, it adheres by a dry cellular tissue, easily torn and detached; on the contrary, it is very adherent over those parts furnished with an adipose cellular tissue, or where it covers muscles without the intervention of adipose matter. At a still later period the skin becomes drier and thinner wherever it has not become saponified—on the anterior parts of the corpse it is still the driest; frequently it is perfectly dry on the front of the body, while on the back it is still very moist, thin, and partly destroyed by maggots. It becomes gradually of a deeper brown, or of a dirty yellow, but in general it retains yet considerable firmness, although destroyed, or as it were, corroded at many points. The thinning of the cutis proceeds at length so far, that no longer any traces of it are perceptible. It is proper to remark, that the destruction of this tissue takes place much more rapidly in those portions which have not become dry nor transformed into fat.

Among the changes which the skin undergoes after inhumation, M. Orfila has not, it will be perceived, comprised cadaveric lividities, welts, or ecchymoses. The cadaveric lividities of the skin, he remarks, commence ordinarily from the period the body commences to lose its heat, and consequently before interment; besides, he has described them minutely in his *Leçons de Médecine Légale*, Tom. II. p. 237. With respect to the welts, they are nothing more than the cadaveric lividities of the skin, traversed by lines, furrows, or whitish spots, produced evidently by the pressure upon the parts of the clothing, ligatures, &c. As to the subcutaneous ecchymoses, he has never had occasion to observe them in the subjects that he has submitted to putrefaction—he does not, however, suppose that they are never developed during the putrefaction of dead bodies, but on the contrary, believes that they will form in young individuals whose bodies are fat and full of juices, who have died of an acute disease, and have been interred during summer. These ecchymoses show themselves most frequently in the most depending parts, as the occiput and loins, or in the eyelids and scrotum, where the cellular tissue is very loose and readily distended. In general their colour is uniform, never presenting the different shades of yellow, reddish brown, and black, which are ordinarily observed in the ecchymoses which have been produced during life.

The subcutaneous cellular tissue presents but little change at first. On the anterior part of the body it becomes dry and tolerably firm, especially over the abdomen and at the centre of the thorax, where the layer of muscular fibres is very thin. On the posterior part of the body, it becomes infiltrated, soft, and tender. The infiltration may be simply of a bloody fluid, or of a red fluid, containing minute globules of a yellow fatty matter.

At the back part of the head and neck, and over nearly the whole of the posterior part of the thorax, and the loins, the infiltration is more or less of a violet hue, and of a gelatinous appearance, very similar to the tumefaction of the cellular tissue of the scalp, which is occasionally observed in new born infants, the tissue being swollen and readily torn. On the buttocks and posterior surface of the limbs, this gelatinous condition is not so striking, and the fluid contained in the cellullar tissue, escapes much more readily than in the other parts. On the sides of the thorax and abdomen, the infiltration of the cellular tissue presents an appearance intermediate between that of the posterior and anterior portions of the trunk. On the anterior and lateral parts of the thighs and arms where the muscles have considerable thickness, the cellular tissue is very moist but not infiltrated, and is readily torn,—putrefaction having already taken place here to a greater extent than in those parts where the muscular tissue is thinner. In the bodies of those who have laboured under anasarca, the infiltration of the cellular tissue, at the parts alluded to, is more considerable than in other cases.

At a later period, especially in fat subjects, the adipose cellular tissue commences to saponify. It becomes of a grayish white or yellow, of the consistency of suet, and of an unctuous feel. When in considerable amount it presents, on being cut into, a porous spongy appearance, which arises from the presence of a multitude of small cavities, produced either by the drying of the tissue or by the disengagement of gas. At a still later period M. Orfila has found the cellular tissue, as it were, dried, opaque, white or grayish, filamentous, and easily torn, in those parts where it has ordinarily but little fat; and yellow, tender, moist and very similar to lard that has been rendered and allowed again to cool, in those parts in which it contained fat. Finally it was found of an orange yellow, of a granular appearance, and evidently saponified, in parts loaded with fat. The conversion of the fatty cellular tissue into soap is far from being a constant phenomenon. M. Orfila has seen the tissue present in all respects its natural condition in an emaciated body that had been buried for months, while in a fat body interred about the same time with the former and in the same soil, it had already become, in different parts, saponified. At a still more advanced period subsequent to interment, the cellular tissue which has not been converted into soap becomes dry, brown, and finally completely destroyed.

The muscular tissue. In this the first change is a softening. In general it loses at first some degree of its redness wherever it is not infiltrated to any extent; in some parts however, it presents a violet tint, while on the abdomen it is frequently green. For some time the texture of the muscles is still very perceptible; they are not converted into a fatty matter excepting perhaps in the orbits of the eyes, where saponification occurs much sooner than elsewhere. The colour of the muscles is now greenish or like the dregs of wine; the first is more common than the second, which is never remarked excepting in those situations where a bloody infiltration occurs. With the exception of that part within the orbits, the tissue under consideration is moist throughout, and in many parts it is soaked with a sero-sanguineous fluid similar in colour to that contained in the cellular tissue. This fluid is so abundant in some of the muscular parts, particularly about the back, that it runs out in great quantity upon pressure being applied, or an incision being made. The muscles themselves resemble a jelley, in the midst of which may be detected fleshy fibres; the form of the organs in which the infiltration has taken place, is still, however, easily recognized. Notwithstanding the fluids with which the muscles are soaked, they are reduced in bulk, their fibres being, as it were, dissolved in the fluid they contain. On the inner part of the limbs, the muscular tissue forms a very thin covering to the bones. The resistance of this tissue is in general very much diminished; the ease with which it can be torn being in proportion to its degree of infiltration; as this is the greatest on the back where the muscles are the thickest, they there present the least firmness. After it has become softened and has assumed more or less of a green colour or that of the dregs of wine, or, on the contrary after having become paler, the muscular tissue saponifies or becomes destroyed. The change into soap occurs more especially in fat bodies; the muscular fibres become more and more pale, many are already changed into a whitish soap, while others still preserve their rosy hue. M. Orfila has never observed a whole muscle completely changed into this substance. The entire destruction of the muscles is much more common than their saponification. It takes place as follows; the tissue of the muscle becoming softened, dries gradually, and loses so much of its volume as to become flat; as the dryness increases, the muscle becomes of a darker colour and finally perfectly brown. The tendons, and aponeuroses, with their fibrous structure, are still perceptible. All the muscles, however, do not become dry; those which still retain their moisture present always a deep green colour, or that of the dregs of wine. The dried muscular fibres become finally completely destroyed, and all that remains behind are membranous layers, of a gray or yellowish brown colour, presenting no trace of fibres. Frequently these layers are moist, brown, and very similar to leaves of tobacco that have been first dried and then moistened. Finally, in some parts of the body, in place of the muscles there remain spongy masses of a brown, or even black colour, resembling in appearance certain of the polypi. On the posterior part of the limbs, the drying of the muscles is never so complete as in other parts; neither has M. Orfila found the dryness to take place on the back nor in the loins, where the muscles are constantly bathed in fluids. They are here destroyed as it were by maceration.

Aponeuroses and tendons. The aponeuroses which envelope the muscles, preserve for a long time their brilliancy and firmness; they in general, however, assume a bluish colour at those parts where they are very thin. The same may be said of the tendons, with the exception, that they always retain a more white, and silvery appearance, arising evidently from their greater thickness. Wherever the tendons are spread out in sheets, they appear in all respects similar to the aponeuroses. Some time after interment, the tissues under consideration assume at first an opaline or yellowish appearance; subsequently their colour changes to a clear and even deep brown. They become more or less completely dry and lose their pearly appearance; but on leaving them in contact with water for some time, they assume their original characters. It is the tendons and aponeuroses in connection with the cellular tissue which constitute, almost entirely, the membranous masses that remain after the disappearance of all the soft parts; these in their turn become finally destroyed, and the body is reduced entirely to a skeleton. The tendinous tissue is that which resists the longest putrefaction.

Ligamentous tissue. During the first months after interment, the articulations are still entire, their ligaments having scarcely changed in appearance, and retain still considerable firmness. Afterwards the ligaments soften, become yellow, and after a considerable lapse of time they are entirely destroyed. They do not resist putrefaction so long as the tendons. The crucial ligaments of the knee joint remain unchanged the longest. All the others, after a few months, become so completely confounded with the soft parts by which they are surrounded, as to render it impossible to recognize them.

Cartilaginous tissue. The cartilages of the articulations present for a long time their natural appearance and texture, excepting that they assume a slight rose colour. Subsequently they become yellow and lose some part of their thickness; their consistency gradually diminishes, and they finally disappear, leaving the surface of the bone covered with a very thin, moist, and somewhat fatty layer of the colour of bister. The cartilages of the ribs become likewise brown and lose their suppleness; but before they disappear entirely they become perfectly black, fragile, and as it were worm-eaten.

Osseous tissue. The bones scarcely undergo any alteration even after the lapse of many centuries. The teeth also resist destruction for a long period. The enamel of the latter, appears, indeed, to be almost indestructible.

Serous tissue. The pleura, peritoneum, &c., assume at first a grayish colour, and are softened. Later, they become thinner, tear readily, and are somewhat dry. At a still later period, their colour is pale, then changes to a bluish tint, afterwards to an olive brown, or bluish black. Frequently their surface is coated with a black substance, resembling fat. Finally, these membranes entirely disappear. M. Orfila has recognized the pleura in a body interred in a thick coffin, and opened after having remained in the earth fourteen months.

Encephalon. The brain, which so rapidly putrifies when out of the cranium, resists for some time decomposition when allowed to remain within the skull. Frequently, the vessels of this organ are engorged with blood at the moment of death, which arises from the distension of the stomach by gas, the diaphragm in consequence is pressed upwards and the blood contained in the right side of the heart is forced towards the brain. During many weeks after interment, at least when the temperature of the season is not considerable, the brain preserves so much of its natural appearance as to enable us to trace its different parts and to detect the existence of any morbid effusions or softening. Its colour very soon, however, changes to a bright olive gray. It commences to soften, which change begins in its cineritious substance; it now diminishes in volume and no longer fills the cavity of the cranium. The whole or nearly all the convolutions may be seen, as well as the two substances of which the brain is composed, the medullary portion is, however, of a grayish colour, and the cineritious of an olive green. In a case in which death was caused rapidly by an attack of apoplexy, M. Orfila found the brain reduced at a very early period into a very soft pap of the colour of the dregs of wine. Subsequently it is still softer, being reduced to a thin paste; the two substances and the various parts of the brain can no longer be distinguished; they have both assumed an uniform greenish colour, or one resembling that of the dregs of wine, and exhale a most horrid fetor. Here and there may be seen in the mass of the decomposed organ filaments surrounded by fatty granulations, which are perhaps the blood vessels. At a still later period, the fetor no longer exists; the cranial contents have a greater degree of consistency and form now a mass of a greenish gray colour. Frequently at its surface it has a yellowish appearance, and at other times it is full of perforations formed by maggots. In every case the substance of the brain decreases by degrees in bulk, and finally does not occupy more than a tenth or even a twelfth part of the cavity of the cranium, and in this case is frequently saponified. M. Orfila has found a portion of the brain to remain after the entire destruction of all the other viscera, in every case excepting one, in which the whole of the brain had been destroyed by worms and the cranium was entirely empty. The cerebellum and spinal marrow present the same changes as those above described, but in general they become much softer. The pia mater and arachnoid tunic observe the same changes as the other serous membranes. The dura mater presents but little change at first, but subsequently, becomes almost always, greenish, softened, and tears frequently into shreds, having a bright slate colour. The presence of a serous fluid in the ventricles of the brain, the spinal canal, or in the cells of the pia mater, is not to be viewed as a cadaveric phenomenon, nor as a pathological effect excepting inasmuch as the fluid met with differs in its quantity and properties from that always existing in the brain &c. in a normal condition. The part at which this fluid is found accumulated will depend in a great measure upon the position in which the corpse is placed during examination, which may be such as to favour the flow of the fluid towards the cranium or the spinal cavity.

The *nerves* are in a perfect state of preservation even many months after interment, and only differ from their normal condition in presenting a less degree of solidity and having a slight rose colour.

Globes of the Eye. A few days after interment, the cornea becomes flattened and opaque, and the humours of the eye assume a clear brown or reddish hue. After a few weeks the eyes have so far sunk that they appear at first to have been entirely emptied of their humours; the cornea has become more opaque, and the fluids they contain of a deeper colour. The latter have now very little consistency and are of the colour of bister, which appears to arise from the choroid coat; the lens as well as the several membranes of the eye still preserve their usual characters. The eyes, in general, are found entire at the end of the second month. Subsequently the globes become empty, no part of them remaining but their membranes and the lens. In a short time no part of them is met with excepting the remains of the sclerotica of a brownish colour. Finally nothing is found in the orbits but a mass of the fat peculiar to dead bodies. Few of the organs are destroyed so rapidly as the eyes. In the exhumations made at Bicêtre, M. Orfila has never found a vestige of them remaining four months after death.

Organs of respiration and of circulation. Twenty-four or thirty-six hours after death, if the last agony has not been protracted, that portion of the lungs which was the most depending during the period when the body loses its heat, will be found engorged. If, as is generally the case, the subject is placed on the back, and the situation has not been changed subsequently, the congestion of blood will be found to occupy the dorsal portion of the lungs; it will occupy on the contrary their anterior or inferior portions if at the moment of death the body has been placed upon the abdomen in a vertical situation, as when suspended, and this attitude is not changed until the body has become cold. If immediately after death the body is turned, there will be found, in what was the most depending portion of the lungs at the moment of death, but slight traces of engorgement, and the blood will be accumulated in that portion which was most depending during the period of cooling. In either case the engorgement may be to such an extent as to diminish the cohesion of the parenchyma of the lungs and to press out entirely the air from the part which the blood occupies. The bronchia, of course, become of a uniform red in the neighbourhood of the engorgement. If the final agony has been protracted, or death has been caused by a disease of the thorax causing a considerable impediment to respiration, the congestion will occupy the part of the lungs which was the most depending at the instant of death. From what precedes it will be perceived, that we should deceive ourselves if we were to attempt to decide, from the lividity of any particular part of the lungs, the position of the body at the moment of death or during the cooling process; the duration of the agony and the nature of the disease must also be taken into account.

This congestion of the lungs gives to them many times, particularly at their posterior part, a colour more or less black, which has in certain cases been mistaken by the inattentive physician for the result of gangrene or sphacelus.

After interment, the lungs preserve their ordinary appearance for a considerable time, they soon however became emphysematous. It is only in bodies that have died recently that the engorgement of the posterior part of these organs exists. At the end of several months the structure of the lungs is perceptible and the fact of any pathological lesion of them may be determined. Subsequently, they became more or less collapsed, no longer filling the cavities of the pleura; they are now of a bottle green colour more or less intense, inclining to a slaty or bluish hue. Their structure can at this period seldom be detected. They are soft, easily torn, and contain a brownish fluid. At a still later period all that remains of the lungs are two small masses attached to the depressions on each side of the vertebral column. These are occasionally covered with a whitish mould. They lose by degrees their humidity, become more and more thin, of a black colour, and finally are entirely destroyed.

The mucous membrane of the *Trachea* and of the *Larynx* becomes at first of a clear olive green, or of a dark green inclining to black. Frequently, however, especially towards the upper part of the canal, it has a gray and slightly violet colour with here and there blackish points. At a later period the colour of the membrane is red, or similar to that of the dregs of wine, particularly the part which corresponds to the cartilaginous rings. Finally, the colour becomes black or deep brown. In certain cases the epithelium of this membrane is detached in small shreds of various colours. In some instances the membrane presents a number of grayish granulations, resembling fat, about the size of pin heads, which appear to be formed of other smaller granulations. These bodies, frequently very hard, as well as the detached portions of the epithelium, may be mistaken at first sight for foreign bodies introduced into the trachea. Besides the above changes, the whole tube becomes by degrees softened, the cartilages lose their elasticity, and, after a certain time, there remain only the cricoid and thyroid cartilages separated from each other, as it were worm eaten, semi-transparent, of a yellowish colour, spongy, and brittle, with a few of the cartilaginous rings, very flexible and of a yellowish brown. At a still more advanced period not a vestige of these organs is to be detected.

The *diaphragm* retains for a very long time its normal appearance; M. Orfila has frequently been able to detect its aponeurotic centre and its muscular fibres in bodies that had been interred for 6 and 7 months. Subsequently it becomes thinner, more dry, of an olive or brown colour, and is frequently perforated. It is finally reduced to a brown and very thin membrane presenting neither the form nor texture of the muscle. In certain cases upon both its surfaces, hard white granulations are found, formed of the phosphate of lime.

Heart and Blood-vessels. For the first twenty-four or thirty-six hours after death the heart is found in its normal condition. Frequently it is pale, and in other cases it presents a deep red colour, or only red lines, either in the thickness of its parietes or on its internal surface. At a later period its consistency may be diminished. The arteries and veins are occasionally on their inner surface of a red colour, either over the whole of their lining membrane or only in stripes—more generally, however, the vessels present no change from their ordinary condition. The redness is found in the bodies of those who have died of various diseases; it is to be considered, therefore, as a cadaveric phenomenon, produced evidently by the transudation of the blood after death.

If the heart be examined some time after interment, it will be found sensibly softened, flaccid, of a violet colour more or less decided, less often of a greenish hue; it may be empty or containing blood, partly fluid and partly coagulated. The colour of this organ, especially on its interior, becomes by degrees deeper, and finally black. The valves present frequently, brownish spots, the effect of a transudation. In other cases, there is observed on the inner surface of the auricles, or exteriorly, white and hard granulations, like sand. At a later period, the heart collapses and is reduced to a tongue-shaped mass of a blackish brown colour, thin, often torn at parts, and very pliable, resembling a double gum-elastic bag, the parietes being capable of distension so as to enable us to detect the two ventricles. The original texture of the organ is, however, no longer perceptible; a few blackish filaments, however, remain, which are the remains of the columnæ carniæ. Finally nothing is left but a black layer, resembling bitumen, which is easily washed away with water. The more rapidly the destruction of the thoracic parietes takes place, the more speedily the disorganization of the heart will be found to occur.

The pericardium assumes at first a reddish hue, then a deep red, and finally a blackish brown. It becomes softened by degrees, and finally disappears. M. Orfila has frequently found it to contain a greater or less quantity of a bloody fluid.

Bloodvessels. Two or three months after interment, a certain amount of black blood, either fluid or coagulated, is found in the veins or arteries. In some cases, however, the author has met with no blood at the end of one month after interment, and he has frequently found, in place of blood, a bloody fluid of a rose colour, eight or nine months after burial. The parietes of the vessels become first rose coloured, then red, afterwards deep violet, and finally brown. These hues are most decided on the interior of the vessels; the lining membrane assumes, however, in some cases, a bottle green colour. The colour is sometimes uniform, and in others in stripes or patches. For several months, the different coats of the bloodvessels may be readily separated from each other. In one instance M. Orfila found the aorta entire after the body had lain in the ground fourteen months.

Digestive canal. Before entering upon the changes which the stomach and intestines undergo subsequently to interment, M. Orfila considers the state in which they are ordinarily found after death, from various diseases other than inflammation of these organs, and the changes which they undergo before the body is deposited in the grave.

Whatever is the disease which occasions the death of aged persons, it being such chiefly that M. Orfila subjected to examination, whether cerebral hemorrhage, softening of the brain, pneumonia, pleurisy, or diseases of the heart, &c. scarcely ever is the mucous membrane of the digestive canal in a state of perfect integrity. Very generally we recognize in the stomach and intestines different alterations, which, though they indicate a change from the perfectly physiological condition, can but in a very few cases be considered as morbid. These kinds of alteration are often much more decided, than those produced even by very intense diseases of the alimentary canal, which have of themselves caused the death of the patient. Of all the diseases not seated in the digestive tube, those which occasion the most remarkable changes in its lining membrane are undoubtedly those of the heart and large vessels; and as there are few individuals of seventy years of age who die without some disease of the latter organs, there are few in whom, therefore, some change in the gastro-intestinal mucous membrane does not exist after death. This change, which so long as it is confined to a mechanical injection, more or less considerable, of the blood vessels, is to be considered still as physiological, may nevertheless be carried so far as to be strictly morbid. Thus the blood accumulated in the permeable tissues of the alimentary canal, acting as a foreign body, may in the end not unfrequently induce a species of inflammation, if the expression be allowable. In which case the redness is of a cherry, or violet hue, or similar to that of the dregs of wine, and penetrates deeply into the substance of the membrane throughout its whole extent, or in some particular parts is more decided than in others. In some cases the blood thus accumulated is exhaled into the alimentary canal, giving rise to consecutive hemorrhages. But before it attains to that condition which is to be considered as morbid, the mucous membrane passes through different states, in which the action of the intestines is but little, or not at all, impeded, and which may be regarded very nearly as physiological. The œsophagus is in general more injected than in its normal state—here and there are observed on its mucous membrane, especially towards the cardia, violet spots of various sizes, resembling in every respect ecchymoses. These are beneath the epithelium which is here thicker and denser than that of the gastric mucous membrane, if, indeed, the latter have any. The diameter of the œsophagus is frequently partially contracted; at the parts in which the contractions have taken place, there exist longitudinal folds, and the parietes of the tube appear there to have an increased thickness and density. In other respects no traces whatever of inflammation can be detected.

The stomach presents an infinite variety in regard to colour, consistency, volume, and diameter, &c. The peculiar structure of its mucous membrane causes the latter to become very readily engorged with blood whenever there exists an obstacle to its free circulation; it is therefore very rare that we find this membrane white with a light and uniform rose tint, which is its true physiological colour. It is also to be recollected that this membrane is very readily penetrated by any colouring matter which may be contained in the stomach; and the tint thus produced cannot be entirely removed by the most careful washing, however frequently repeated. Thus wine and decoctions of bark, redden this membrane, and may lead an inattentive observer to suppose that this colour is owing to an injection of blood: whenever the stomach contains a red fluid, we should be cautious, therefore, to ascertain whether the redness of its mucous coat is not produced by it. The colour of the latter will, in that case, be uniform and destitute of those arborescences and vascular injections, which are the characteristics of a distended state of the capillaries; by washing and maceration, also, the colour will in part, if not entirely, be removed.

When the discoloration of the gastric mucous membrane is the result of a stasis of blood in its vessels, it presents various shades, from a light rosy tint, to a deep black, and this without the function of digestion being in any notable degree deranged. The great curvature of the stomach, its large extremity, and particularly its pyloric portion, are the seats of this congestion, either from the capillaries being there more developed, or from the situation of these parts favouring the injection. We observe very rarely a uniform discolouration, but most generally patches of a rose colour, of a bright red, of the colour of the dregs of wine, a brown, slate colour, or even black; these patches are as large as the palm of the hand, sometimes larger and sometimes less. In the same stomach, it is not uncommon to observe all the above shades, separated frequently by marked lines: the mucous membrane has frequently a spotted appearance, resembling what occurs in scurvy; its surface is either smooth, polished, or rough, covered with small points or eminences, or, as is frequently the case, spread over with very small fungous excrescences. In many cases, also, large bluish veins wind beneath the mucous membrane of the stomach and small intestines, which has a whitish colour somewhat inclining to an ash. In all these cases the individual, during life, does not experience any inconvenience referable to the stomach. The consistency of the gastric mucous membrane is variable in different parts of its extent—in some parts it has so little adhesion, that it may be removed by rubbing it with the back of the scalpel, and is mixed with the mucous, from which it can scarcely be distinguished, while in other cases it is removed with difficulty by the edge of the knife. The parietes of the stomach are sometimes translucent; the only opaque parts being formed by the vessels, of a very large diameter, which pass in a serpentine course through the substance of the organ. In these cases the volume of the stomach is considerable; being sometimes double what it is ordinarily. In some cases the organ is contracted—its parietes being thicker and firmer than ordinary: the mucous membrane is in these instances gathered in a number of folds, in general longitudinal. Partial contractions and dilatations are also met with—the stomach presenting the form of a gourd; towards the contracted portion the mucous membrane is folded in the manner already noticed. In some stomachs the mucous membrane is in great part removed about the large extremity, without any disease having existed in the digestive tube. In these cases, however, the circulatory apparatus is enormously developed. The foregoing are the most remarkable alterations which exist in the stomachs of aged persons who die of diseases of the heart. It may be said, that in every instance a latent disease of the stomach existed; to this M. Orfila replies, that the changes alluded to occur very frequently, and the manner in which they are effected being susceptible of a plausible explanation according to physiological laws, he prefers considering them as modifications coincident with a state of health, than as exceptions to the ordinary pathological conditions.

The intestines, especially those which fall within the pelvis, present modifications similar to those of the stomach. The *duodenum* is frequently injected, red, brown, &c., but less so in general, than the stomach; the bile which remains in it, gives to it a shade of yellow, or of green, which readily distinguishes it from the stomach, excepting in those cases in which the bile has passed into the cavity of the latter.

The jejunum is more frequently than either of the other intestines exempt from change. It is in general coloured yellow or green, by bile, but it is rarely the seat of any considerable degree of injection, of hypertrophy or atrophy of its parietes, or of dilatations, or contractions. The *ileum* as frequently as the stomach, presents the same changes of colour that were noted in speaking of the latter. This arises probably from the very depending position of this intestine, when the body is laid upon its back, the injection of its vessels occurring probably during the last moments of life, or immediately after death. The colour of its mucous membrane is most frequently a very deep red, or precisely like that of the dregs of wine. This colour occupies the whole of the membrane; being deeper, however, at particular points. The caliber of this intestine is often contracted, its parietes appearing then to be hypertrophied. In other cases, but rarely, its diameter is more enlarged, and its parietes thinner than ordinary; this thinning of the coats is sometimes so great as to cause them to be pellucid or transparent, and to have the appearance of a simple serous membrane. Alternate contractions and dilatations likewise exist occasionally. In the *colon*, the alterations described are always to a less extent and less frequent than in the other parts of the digestive tube. Thickening of its coats, contraction, and dilatation of its diameter, are the most frequent changes it presents, injection of its vessels the least frequent. The foregoing remarks relate to those subjects who have died from diseases of the heart. In an individual in whom the heart was not diseased, aged sixty-five, but who died of the effects of a burn, at the end of eight days, the gastric mucous membrane was of a grayish colour, and that of the intestines of an ash colour. In a woman sixty years old, who died of old age, the lining membrane of the stomach was of an ash colour, that of the duodenum whitish, with a slight shade of yellow, that of the cœcum grayish, and of the rest of the intestines whitish. M. Billard from whom these two facts are borrowed, places among the cadaveric changes which may occur in the intestines of individuals who have laboured under no disease of the gastro-intestinal mucous membrane, spots of a yellow colour, more or less extensive, or simple bands of this colour spreading over the mucous surface of the two first intestines.

The changes in the colour of the gastro-intestinal mucous membrane though met with in the middle aged, are not so numerous as in the aged. If the individual dies suddenly during digestion, of a disease not affecting the alimentary canal, the inner membrane of the stomach is ordinarily rose coloured, while that of the intestines is gray, ash coloured, or white, with or without patches of yellow; on the contrary if death has not taken place during digestion, and has not been sudden, the colour of the inner surface of the alimentary tube may be more varied and of a deeper hue, although it be not the seat of disease.

Spots of a red, livid or blackish colour, irregular and extended, similar to those met with on the surface of a corpse, are not unfrequently seen under the serous membrane of the intestines, or in their very tissue. They occupy the portions of the intestine which are the most depending at the period when the body loses its heat, and depend on a stasis or congestion of blood in the capillaries—they cannot be considered as the product of inflammation.

M. Orfila considers next the changes which he has observed in the stomach and intestines subsequent to interment, without pretending to say how far all of them are a necessary effect of prolonged inhumation; for it will be perceived from what has preceded, that a discolouration or even softening of the mucous membrane not unfrequently occurs even previous to the body being deposited in the earth.

The mucous membrane of the *mouth*, *palate*, *pharynx*, and *tongue*, becomes at first greenish and sensibly softened. The colour becomes by degrees darker, and finally black. All the parts within the mouth lose their moisture, so that after a few months the tongue is reduced to thin and very dry membrane. The internal membrane of the *œsophagus*, becomes at first of a green colour more or less dark, particularly at its superior part; inferiorly it has often a reddish hue—when the latter is of a green colour, it has often been found spotted with red or violet. In the bodies of old men M. Orfila has found on the inner surface of the œsophagus small varicose tumours filled with fluid black blood, and which were evidently the result of disease. At a later period this canal becomes by degrees of a brown colour, and is finally destroyed in the same manner as will be noticed when speaking of the stomach.

The stomach contained ordinarily but a very small quantity of fluid. At first its mucous membrane was found to be of a yellow colour, grayish, bluish gray, or of a bottle-green, all these tints were spotted with red, or violet. Near the pylorus, most generally, the membrane presented a patch of a bluish hue, more or less extensive, and of a deeper colour than the rest. At a later period, the mucous membrane was found elevated at certain points, by collections of gas beneath it of the size of a pin's head, or larger; by this time it had frequently acquired a rose colour, changing afterwards to reddish violet, and had a thin coating of a brownish fluid, similar to thin mud. At a still later period, it was found to exhibit a grayish white, with many spots of blue, without the least appearance of redness. The stomach, which had already undergone a considerable softening, became now greatly altered, and soon after all that remained of it was a portion in the form of a cylinder with a cavity; finally it presented a mass of dry membranes, capable of being separated into coralliform filaments, and soon afterwards, instead of this, was found a moist black substance, resembling the grease of a wheel, covered here and there with a greenish white mould in the form of small globules, and of patches resembling very much the earthlike litchens found upon the trunks of old trees. Many months after interment, the three coats of the stomach were separable; the muscular and serous not always presenting the same changes in colour as the mucous; in general they were of a grayish or yellowish tint, then rose, and finally again became grayish. The portions of the serous membrane corresponding to the liver, were sometimes found of a reddish colour, especially soon after interment.

Intestines. These at first became of a gray colour, sometimes they were slightly reddish on their exterior, and gray within. In some cases, however, the mucous coat assumed a red or violet colour in parts, and where it was covered with fœces of a yellowish cast. Subsequently the thickness of the parietes was found to diminish; they began to be torn and to adhere to each other; subsequently they became brown, more dry and adherent, so that it was difficult to separate them from each other. They formed now a mass which was closely applied to the vertebral column. For a long time they were found to preserve their fœcal contents. They finally underwent the same changes, and were destroyed like the stomach. For a long period after death, even when there existed no longer any traces of the thoracic viscera, some vestiges could be discovered in the abdomen of cylindrical portions of the intestinal tube, although no remains of any poisonous substance could be detected, to which their preservation might be referred.

The *omentum* and *mesentery* became at first grayish, or rose-coloured and softened; soon after they became dry, lost their suppleness, and presented a tendency to become changed into the fat peculiar to dead bodies. In other respects, these membranes remained for a long period without any very remarkable change.

The *liver* became at first softened, and of a brown colour, its peritoneal covering could be detached with ease, and was soon destroyed, at least in part; after a few weeks the normal structure was no longer perceptible, the large vessels which penetrate it could, however, still be traced, having their exterior surface frequently covered with a sanies of the colour of dregs of wine. Subsequently granulations were found upon the surface of the liver like sand, and formed of the phosphate of lime, and in some instances the interior of the vessels contained other soft granulations, of a white colour, formed evidently of cadaveric fat. At a still later period the liver was found reduced to a flattened mass of the thickness of half an inch, of a blackish brown colour, somewhat dry, which being cut into divided itself into leaves, between which was found a solid substance, of a brown colour, resembling bitumen. The remnants of the organ became more and more thin, and finally black, coralliform and separated by the slightest touch. Frequently, however, in place of drying, the liver became transformed into a soft, blackish substance, resembling the grease of wheels, in the midst of which was seen a yellowish substance resembling fat.

The *gall bladder*, either empty or containing a thick bile of an olive green colour, was found almost always but little changed, even when the liver had undergone very considerable alteration.

The *spleen* very soon became softened, and could be easily torn, it became more and more of a brownish colour, and its structure was no longer to be recognized. It soon after was found reduced to a blackish paste, resembling the grease of wheels, or the mud of a gutter, which impregnated and coloured the parts in its neighbourhood. In certain cases the spleen becomes of so fluid a consistency as to resemble decomposed blood.

The *pancreas* first becomes softened, and then of a deeper gray. The softening proceeds so far as to reduce the organ into a paste, at first grayish, but which becomes subsequently more and more brown.

The *kidneys* do not become softened so rapidly as the spleen; they, however, soon lose their consistency—the exterior membrane is readily detached. Their pelves and calices may still be recognized, even when the structure of the cortical and tubular portions is entirely destroyed. These organs become finally converted into a brownish paste like the grease of wheels, and are soon destroyed.

The *bladder* undergoes no remarkable change for the first weeks after interment. It is often, however, the seat of a submucous emphysema. Subsequently it collapses, and experiences very nearly the same changes as the intestines. It is destroyed, however, at an earlier period than the latter.

Genital organs. Although softened, these preserve for some time, their form. In the male the cavernous portion of the penis soon collapses. Subsequently the penis is flattened, resembling the skin stripped from an eel, the form of the organ being no longer evident. The scrotum, at first very much distended with gas, becomes by degrees dry. The testicles diminish in volume, acquire a vinous tint, and are transformed into fat. Subsequently the penis resembles a tube of a somewhat firm consistence, the parietes being in contact; when these are separated it assumes the form of a hollow cylinder. The scrotum and its contents are reduced to a soft, brownish, moist substance, with here and there a few membranous shreds, and covered with a black viscid coating full of maggots. At a still later period the organs of generation are so far destroyed that the sex of the subject cannot be determined; the pubis is still, however, covered with hair, which is firmly attached to the membranous and carbonaceous mass into which the soft parts have been reduced. In females, the genital organs become first softened, after which they are reduced to a membranous mass, from which we are not able to determine the sex of the corpse. The uterus also becomes softened, then flattened, and at the end of a few months is so changed that it cannot be recognized, excepting from its situation. The fallopian tubes and ovaries are very early destroyed. The broad ligaments present a greater resistance to the putrefactive process, and become of a grayish colour.

Developement of gases. Subsequently to death all the large cavities of the body, as well as those of the heart, blood vessels, arteries, &c., and the cells of the cellular tissue may become distended by gas, resulting from the decomposition of the fluids. This is especially the case after a sudden and violent death, preceded by acute pain, violent efforts, &c. In these instances the body becomes, in a few hours, emphysematous to such an extent as to swim in water.

Having briefly examined the phenomena which the different organs of the body present in the various stages of putrefaction, it will be of advantage to present a sketch of the principal changes which, according to the investigations of our author, are presented by the head, thorax, abdomen, pelvis, limbs, &c.

The *head* is still attached to the spinal column, and preserves all its relations, even when the eyelids have become very thin, and so sunk in, that, at the first view, the orbits appear to be only half filled. The globes of the eyes are found collapsed at a very early period, the same is the case with the nose; the lateral portions alone, however, are, in many instances, all that have become flattened. Soon after, the hair becomes detached from the scalp; the eyelids, soft parts of the nose, and even the lips, already extremely thinned, become destroyed. A portion of the scalp is also destroyed, and the bones, where laid bare, are coated with a thin layer of a fatty kind of matter of a brown colour. At the posterior part of the head there exists an infiltration beneath the skin of a sero-sanguinolent fluid: this fluid is also found beneath the periosteum; this infiltration arises from the supine position of the dead body. In these parts the integuments, although still tolerably firm, are readily detached. The ears and cheeks are at this period in a state of considerable preservation; over various parts of the cranium and face, a soft green or whitish, and cottony mould is to be observed. Later, between the third and fourth months, in the examinations, at least, made at the Bicêtre, every portion of the face was destroyed; all that remained was a few membranous fragments, particularly about the malar bones. The inferior maxillary bone was still attached to the temporal, and the head to the spine: a slight force, however, served to detach them. At a still later period, the two jaws widely separated, allowed the basilary apophysis of the occipital bone to be seen. The jaws were still united by some slight remnants of the soft parts: the attachment of the head was now very slight. Finally, the bones of the head and face are completely disarticulated, and deprived of their natural covering; the former being coated with a paste composed of the hair mixed with earth, which being removed, shows them of a bright brown colour, spotted here and there with large patches of a deep brown.

Thorax. The thorax rarely experiences any change for the first three months after interment. The cavities of the pleura may contain more or less fluid, but this effusion is rarely the result of putrefaction. The collapse of the thoracic viscera, and especially of the lungs, is not so marked, that on opening the thorax any striking vacancy in its cavities is observed. A short time subsequently, the thorax becomes depressed; the sternum appears to touch the vertebræ, and may be readily removed with the hand; many of the ribs begin to separate from their cartilages, and the intercostal spaces are only closed at certain points, by a grayish membrane which retains the ribs in contact. When the thorax is opened its cavities appear empty, and are lined by a membrane resembling, in colour and consistence, gray paper moistened; it is impossible to say absolutely of what organs this membrane is the remains. Still later, the ribs are almost completely divested of their flesh, and scarcely adhere to the sternum, which has a brown colour, and is covered with a mould. The sternal cartilages are very nearly separated from the sternum and ribs. Those which remain are black, perforated, still supple, and are detached and broken with ease. Their fracture is attended with a slight noise. The cavities of the thorax are covered with white or coloured mould, and the intercostal spaces are, in parts, already deprived of their soft parts. At a still later period, the sternum and costal cartilages are separated, their remnants are found scattered within the thorax and abdomen. At a still more advanced period the chest is entirely destroyed. The sternum divided in two, occupies what were the cavities of the pleura. The ribs are nearly all detached, and lie one upon another at the sides of the corpse. They are covered with a black substance, resembling a soft vegetable extract, and which is evidently the remains of the soft parts; they are more brittle than in their natural condition, and their interior is very dry and porous. Scarcely any of them retain their cartilages; these are very supple, of an olive gray, but covered with a brownish coating; they are, as it were, worm-eaten in places, and appear extremely porous, their internal structure being evidently destroyed.

Abdomen. The abdomen does not experience, for a long time, any particular change, excepting the green, yellow marbled with green, or ochreous colour of its integuments. By the third or fourth month, at least in the observations of M. Orfila, it collapses; soon after, its parietes are reduced to a thin membrane, sometimes humid, but more frequently dry, brown, covered with earth and mouldiness, very easily torn, and attached, particularly below, to the spinal column, or to the bones of the pelvis. When the parietes are removed, the layers of which it is composed are, as it were, soapy, of a yellowish white, and ordinarily separated from each other by an immense number of worms. Some weeks subsequently, the parietes of the abdomen are so firmly adherent to the spine, that they can be detached with readiness only at the sides, where they form beds of membranous layers, of a dark red within, and occasionally encrusted with the fat of sepulchres on their outside. A very considerable depression is remarked extending from the xyphoid cartilage to a short distance below the umbilicus. Sometimes, in place of having a smooth surface, the portion which is attached to the spine presents depressions and elevations. At a still later period, the abdominal parietes are reduced to a few membranous shreds of a brown, olive, or black colour, frequently perforated at several points, still adhering to the lower ribs, to the pubis, and the posterior part of the crest of the ileum. The remains of the parietes appear to be composed of the peritoneum, and perhaps of portions of the muscles, very dry, and in some measure, altered in their appearance. Finally, the whole is destroyed, a moist black substance adheres to the sides of the vertebræ, having the shining appearance of the grease of wheels. This forms, in some places, a layer half an inch in thickness; it is evidently the remains of the soft parts. The preservation of the abdominal viscera depending upon the integrity of the parietes of this cavity, it will be interesting to examine, cursorily, the period when these latter become destroyed. This, however, frequently varies, from circumstances difficult to determine; thus, in two subjects, no traces were found of the abdominal parietes; in the first, nine months eighteen days, and in the second, thirteen months sixteen days after interment; while in another which had been buried seventeen months six days, a portion of these parietes still remained, and what is still more remarkable, in another subject which had been buried twenty-three months five days, the anterior walls of the abdomen were nearly entire under the form of an apparently tanned membrane, in which the depression of the umbilicus was perceptible, and to which shreds adhered of a brownish, or blackish colour, similar to tobacco leaves dried, and then moistened. These shreds were united together by soft filaments, similar to tinder, and readily torn. All these bodies were buried in the Bicêtre, alongside of each other, in coffins of the same species of wood, the boards of which were similar in thickness, and they were all enveloped in shrouds. In another subject which had been interred two years nine days, although it was buried in an extremely thick coffin, and enveloped in a shroud of linen, no trace of the abdominal parietes remained. The cavity of the abdomen seldom contains any fluid, at least when none has existed before death. The abdominal viscera have a tendency to become more and more dry; they have no appearance of humidity a few months after interment. The length of time during which the abdominal viscera will be preserved is somewhat surprising to those who are unaccustomed to these species of exhumations. So long as the parietes of the cavity are in a state of integrity, the subjacent viscera will be found to preserve their integrity, form, and relations; until at least the collapse of the abdominal parietes has caused them to become adherent to the spine, and the size of the organs within the cavity has become considerably reduced. At a later period there is considerable difficulty in recognizing the various organs: if we are able to detect the liver, spleen, and kidneys, it will be rather from their relative situations than their form: in place of the stomach and the intestines, we perceive only a mass of double membranes, which being separated, exhibit the cavity of the stomach, and part of that of the intestines. These membranes, which are dry, of a greenish brown colour, thin and perforated at certain points, do not answer to the whole extent of the alimentary tube, nor do they permit us to distinguish in them the different parts and coats of which it is composed, and still less the morbid alterations which may have been produced by the disease existing previously to death. At a still later period, we are presented with merely a mass of dry shreds, which is frequently filled with worms, and may be reduced to coralliform filaments. At one part of the mass portions of a cylindrical form may be detected, forming part of the intestines. Finally, nothing remains but the black matter already alluded to when speaking of the destruction of the parietes.

The *limbs* of the corpse for the first weeks after interment undergo no remarkable change; where the arms are in contact with the thorax and abdomen the skin has its natural hue, while in other parts it may be changed in colour; here, also, there is found a viscid, reddish mucus, by which the parts in contact are so united that on raising up the limb the epidermis is detached. Still later, in proportion as the soft parts become putrid, the bones are laid bare, but still preserve their articulation to each other, the ligaments not being as yet destroyed. Those portions on which the flesh still remains present one or other of the following conditions:—1. The soft parts are impregnated with earth, a white mouldiness, and portions of the shroud, having the appearance of a solid substance, composed of layers, under which vacuities are perceptible to the feel. This hard coating is evidently composed of the fibrous and aponeurotic elements, without the least admixture of cadaveric fat. On cutting into it a considerable quantity of flies and worms make their appearance; at other times this layer has a cellular and fatty feel, and is, at many points, an inch or two in thickness, having exteriorly a crust formed of cadaveric fat, while interiorly it resembles rotten wood, intermixed with soft filaments, the animal nature of which is, at some points, distinguishable. 2d. The soft parts may be reduced to a very thin, dry, and grayish layer, covered here and there with a white mould; this layer sometimes consists of two lamina, the most external formed of the integuments of the limb, and the internal of the aponeuroses; or the soft parts may form one thin, dry, spongy, and filamentous case to the limb, of the colour of tinder, in which neither nerves, vessels, nor muscles can be recognised. At a still later period, the bones composing the limbs may be separated by the slightest force, some shreds of the soft parts only, retaining them in contact; soon afterwards the bones have separated, though still retaining their relative position. Subsequently the bones have fallen apart, and are found in the coffin, shroud, or in the earth.

M. Orfila next considers the changes which the coffin and the clothes in which the corpse is enveloped, undergo: a notice of these, and of some interesting remarks which he subsequently makes in regard to the insects found in bodies after interment, want of room obliges us to omit.

The question is next considered whether the various alterations in the different tissues that have been noticed occur at fixed periods. From all his researches our author has found that bodies interred at the same time do not become putrid with the same facility; some being reduced to a skeleton, while others have scarcely undergone any change. The causes from which this difference results, have reference particularly to the age, constitution, sex, thinness, or obesity of the bodies interred, and to their mutilation or integrity, the nature and duration of the disease by which life has been destroyed, the greater or less duration of the final agony, the period at which interment has taken place, the deposition of the eggs of various insects on the surface of the body, the nature of the soil, and the depth of the grave in which the body is deposited; whether it is committed to the ground naked or cloathed, with or without a coffin; the thickness of the boards, and the nature of the wood or substance of which the latter is composed; the temperature and humidity, &c. of the atmosphere. A few words in detail upon each of these causes.

Age. M. Orfila has found, all things being the same, that the bodies of very young infants are destroyed much more rapidly than those of persons of more advanced ages.

Of the constitution the influence is more difficult to establish, than that of the age, but under similar circumstances, bodies of different temperaments putrefy in different periods of time. M. Orfila has found in bodies, in relation to which all circumstances have had a perfect identity, that at the same period after interment putrefaction in one case had arrived at its height while in another it had scarcely commenced. This difference can only be attributed to a difference in constitution, causing the tissues to differ in density and to be imbued with a varied amount of fluids.

Sex. The predominance of the lymphatic temperament in females, and the greater amount of fat which is contained in their subcutaneous cellular tissue, cause their bodies to putrefy after interment more quickly than those of males.

Emaciation or obesity. Experience proves that obesity favours putrefaction. The greater or less degree of fat which the body contains, modifies in a very particular manner the changes which it undergoes, as we shall see when we come to speak of saponification.

State of mutilation or integrity. M. Orfila found that solutions of continuity of any extent augmented considerably the rapidity of putrefaction. Parts, also, bruised, ecchymosed, or which from any cause contain effused blood, putrefy more quickly than others, even when there exists no loss of substance or solution of continuity of the skin. In parts in which a contusion has existed before death, the putrefaction proceeds with great rapidity.

Nature and duration of the disease. Putrefaction is in general more rapid in those bodies in which death has been produced by an acute disease, than where death has resulted from chronic affections that have induced emaciation. The cause of this is the greater amount of fluids which the body contains in the first instance. The bodies of those who die of hemorrhage putrefy less promptly than those in which the vessels are distended with blood, as happens when death has occurred from asphyxia. Bodies in an anasarcous condition putrefy even more quickly still. Those, the death of which has resulted from small-pox, or other pustular disease of the skin, putrefy more quickly than others; all parts in which a morbid amount of blood is contained putrefy very promptly.

Phenomena immediately preceding death. When death has occurred suddenly or after a long disease, when the final agony has been long or short, when death has been the result of a virus introduced into the blood, the progress of putrefaction will be more or less rapid, without our being able very accurately to appreciate the influence of each of these phenomena.

Period of interment. The more short the time that elapsed between death and burial, the more slowly will the body be attacked with putrefaction; when the interment has been delayed several hours or days after the commencement of putrefaction, it may happen, especially in summer, that in one month after burial putrefaction will be as far advanced as it would have been only after seven or eight months had the interment taken place twenty or twenty-four hours after death.

Insects. The greater the number of the eggs of insects which are deposited upon the surface of a body after death and previously to interment, the quicker will be its putrefaction; it is by destroying the tissues of the body that the larvæ produced by these eggs are nourished.

Depth of the grave, &c. The deeper the grave, all other circumstances being the same, the more putrefaction will be retarded.

State of the body, naked or clothed. M. Orfila is of opinion that the more immediately the body is in contact with the earth, the more easily does putrefaction take place. Thus a body buried naked putrefies much more promptly in a similar soil than if it had been enveloped in a shroud and enclosed in a leaden coffin. Putrefaction takes place more slowly when the coffin containing it is of oak boards an inch thick, than when it is enclosed in a coffin of the same kind of wood only a few lines thick, or in one made of thin boards of fir. The more perfectly then the envelopements of the body protect it from exterior agents, the more slow will be the progress of putrefaction and vice versa.

State of the atmosphere. It is hardly necessary to say that during a warm and humid condition of the atmosphere bodies putrefy with much greater facility than under opposite circumstances.

According to Burdack the changes experienced by a corpse after interment may be divided into three periods. In the *first* the whole body becomes swollen, in consequence of the development of gaseous substances in the cavities and tissues. This period continues many months. In the *second*, the soft parts become converted into a green or dark brown pultaceous matter, the body diminishing in volume from the escape of the gases. This period continues two or three years. In the *third* period, the gases have entirely escaped from the body and the fetor is replaced by a mouldy smell; all that remains is a greasy, brownish, friable earth, which after a considerable number of years falls into dust and mixes with the earth in which the body is interred. This statement, M. Orfila has found to be incorrect. Bodies examined 10, 15, 40 or 50 days after interment were found to be reduced in bulk, and not swollen. Our author does not deny that this swelling may take place when putrefaction commences, but only that it does not invariably; when it does take place it continues for a very short period. In the second period the soft parts do not invariably become converted into a pultaceous substance; most generally, M. Orfila has found them dried and reduced into a lamellated or filamentous body, some even resembling pasteboard. So far from this period occupying two or three years, M. Orfila has in the majority of cases found the bodies reduced to a skeleton at the end of 14, 15 or 18 months, even when they had been buried in coffins and wrapped in clothes. The small quantity of fatty matter which remains after the putrefactive process has been completed is not, as Burdack describes, earthy and friable, it is, on the contrary a kind of soft, oleaginous cambouis, resembling lard strongly coloured.

In regard to the time occupied in the destruction of a body placed in the earth, this is varied, as we have already remarked, by a great number of circumstances. The progress of destruction presents likewise in various bodies differences which are often very remarkable.

Influence of the soil in which the body has been interred upon the progress of putrefaction. M. Orfila during seven weeks in spring made a number of experiments, by burying at the same time portions of the same corpse, enveloped in the same kind of cloth, one foot deep in different kinds of earth brought for the purpose to a corner of the garden of the faculty of medicine at Paris. These earths were, *sand* decidedly siliceous and ferruginous; *mould; garden soil;* and *calcareous* earth from the Bicêtre. Of these experiments, the following are the results.

Putrefaction went on much more slowly in the sand, and much more rapidly in the mould than in the others, at least until the period when a certain amount of cadaveric fat was formed. After this, putrefaction proceeded the most rapidly in those earths in which the least of this fat was found, as in that from the Bicêtre, while in the mould and garden soil, in which more of the fat was formed, it was slower. In the sand, where no saponification took place, the putrefaction was still less rapid, which is to be attributed to the circumstance of this earth possessing in a very high degree the property of retarding decomposition. The vegetable soils appear to be those which favour most the production of cadaveric fat. The transformation into fat appears to commence in the skin and the cellular tissue beneath, and proceeds subsequently to the muscles. The process of putrefaction, however rapid it may have been before a considerable portion of the skin has been converted into fat, then stops, or at least does not proceed in the same manner, the subjacent tissues in place of becoming softer and disappearing are converted into fat, and finally into a grayish white and dry mass in which their structure can no longer be recognized. Cadaveric fat, M. Orfila conceives never to be formed but in those parts of the body in which there exists fat and an azotic matter. The animal fat furnishes the margaric and oleitic acids, and the azotic matter ammonia. In regard to the circumstances which favour the formation of cadaveric fat in bodies buried in the earth, M. Orfila has found that nearly three years is necessary for the conversion of the whole body into fat, but in water, under the same circumstances, the transformation takes place much more quickly. The complete change into fat of bodies interred in separate graves is very rare; under such circumstances only certain parts of the corpse undergo saponification, and often even in these the change is imperfect. It is the bodies accumulated in common graves in which complete saponification occurs; among them those which are situated at the lowest part of the grave appear to be the first which are transformed into soap. The particular nature of the soil in which the body is interred has a powerful influence in promoting or retarding saponification—a considerable thickness of earth above the body appears to be essential to its conversion into soap. Those bodies which are loaded with fat, and at the same time strong and robust, with solid and compact tissues, are those in which saponification takes place the most readily; bodies that are very dry and meagre more commonly are converted into mummies. Saponification occurs more quickly in young than in adult or aged subjects. M. Orfila adds that he has frequently found the soap produced during the putrefaction of bodies interred, in place of being composed of the acids of fat and ammonia, to be almost entirely calcareous; in other words the ammonia has been replaced by lime. In these cases M. Orfila conceives that the rain water in filtering through the earth before it arrives in the coffin, dissolves certain calcareous salts, by which the ammoniacal soap into which the corpse becomes transformed is decomposed and changed into a stearate of lime.

We must here close our analysis of this highly interesting work. The foregoing presents a very full analysis of the first volume, and the space which we have appropriated to it will not, we trust, be considered as unprofitably occupied. The individual who is called upon to examine a body that has for some time been interred, with the view of determining whether death has been the result of disease or produced by violence, is incapable of performing the important task entrusted to him in a manner calculable to subserve the ends of justice, if he be not intimately acquainted with the ordinary changes which the various tissues of a corpse undergo subsequently to its being buried.

In the remaining part of the work, M. Orfila examines the phenomena presented during the putrefaction of bodies immersed in water, in the contents of a privy, and in a dunghill; the comparative progress of putrefaction in these different situations; the changes induced in our tissues by putrefaction which may be confounded with pathological lesions; and he considers finally, the application of all the preceding facts to questions of juridical medicine. On some future occasion we may be tempted to take up the second volume, for the purpose of laying before our readers an analysis of its important contents.

ART. III.—IRRITATION OF THE SPINAL MARROW.

A Treatise on Neuralgic Diseases, dependent upon Irritation of the Spinal Marrow and Ganglia of the Sympathetic Nerve. By Thomas Pridgin Teale, Member of the Royal College of Surgeons in London, of the Royal Medical Society of Edinburgh, Senior Surgeon to the Leeds Public Dispensary, &c. London, 1829. *pp.* 120.

Observations on the Disorders of Females, connected with Uterine Irritation. By THOMAS ADDISON, *M. D., Assistant Physician to Guy's Hospital, &c. &c. 8vo.* 1830.

An analysis of the first of the works whose titles we here prefix, can no more be an adequate substitute for a perusal of it, than for that of the best essays of Abernethy—every word of it should be read. In presenting this notice of it to our readers, we hope to refresh the minds of those who have perused it, and to induce others to procure it and give it a place in their libraries,. among works of the greatest practical importance. After wandering for days through the mazy and barren pages of a McCulloch and other writers of a similar stamp, and seldom coming in sight of an idea worth treasuring up, it is truly cheering to alight on a work so refreshing as the one before us.

Without attempting either a critique or an analysis of this treatise, we shall present an abstract of it, as nearly as possible in the author's own words.

"The difficulty and embarrassment, which have attended the diagnosis and treatment of neuralgic affections, he thinks, have arisen from mistaken views of their pathology. They have too often been regarded as actual diseases of those nervous filaments, which are the immediate seat of neuralgia, instead of being considered as symptomatic of disease in the larger nervous masses, from which those nerves are derived; hence the treatment has too frequently been ineffectually applied to the *seat of neuralgia*, instead of being directed to the more remote and less obvious *seat of disease.*"

It is now pretty generally admitted as a pathologial axiom, that disease of the larger nervous masses, as the brain and spinal marrow, is not so much evinced by phenomena in the immediate seat of disease, as in those remote parts, to which the nerves arising from the diseased portion are distributed. And the author thinks a well grounded analogy will justify us in regarding the nervous masses of the ganglionic system, as bearing the same relation to the nerves derived from them, as the larger nervous masses of the cerebro-spinal system bear to their respective nerves. Hence many nervous affections of the viscera ought not to be considered as diseases of the viscera themselves, but as symptomatic of disease in those particular ganglia, whence their nerves are derived. (p. 4.)

Influenced by these considerations, says Mr. Teale, I have for a few years been in the habit of treating many of these nervous affections, as *diseases of some portion of the spinal marrow or ganglia;* and have been still further confirmed in my opinion, by the frequent and *almost uniform co-existence of tenderness* on pressing some portion of the vertebral column, and the circumstance of *the tender portion of the spine being in the particular situation where the nerves of the affected part originate.*

After announcing thus, in general terms, his own views, the author devotes several pages to adducing the testimony of other late writers, in corroboration of them; and in doing this he evinces a sense of justice and candor, which is not universal at the present day.[*] He then proceeds to describe various morbid phenomena exhibited by the spinal nerves, under the head of *Irritation of the Spinal Marrow*; and several affections of the organs which derive their nerves from the sympathetic system, under *Irritation of the ganglia of the sympathetic.*

Irritation of the Spinal Marrow.

The symptoms of this affection consist in an infinite variety of morbid functions of the nerves of sensation and volition, which have their origin in the spinal marrow; and the parts in which these morbid functions are exhibited, of course, says Mr. T. have reference to the distribution of the spinal nerves.

In this complaint, *tenderness* in the portion of the vertebral column, which corresponds to the origin of the affected nerves, is generally in a striking and unequivocal manner evinced by pressure. In some instances the tenderness is so great, that even slight pressure can scarcely be borne, and will often cause pain to strike from the spine to the seat of spasm or neuralgia. This affection of the spinal marrow occasionally exists throughout the whole extent; more frequently, however, it is confined to some particular portion, and occasionally is seated in different and remote portions at the same time; the particular symptoms, and the tenderness on pressure, indicating the affected part.

When the *upper cervical portion* of the spinal marrow is diseased, we frequently find neuralgic affections of the scalp; the pain strikes in various directions over the posterior and lateral parts of the head; sometimes the twigs in the neighbourhood of the ear, sometimes those which ascend over the occiput to the superior part of the scalp, are more particularly the seat of the complaint; the nervous twigs distributed to the integuments of the neck, are occasionally affected, the pain darting across the neck to the edge of the lower jaw, and sometimes encroaching a little upon the face. These neuralgic diseases frequently assume an intermittent form, the paroxysms generally occurring in the evening. A stiff neck, or impaired action of the muscles moving the head, frequently attends the affection of the upper cervical portion of the spinal marrow; and occasionally the voice is completely lost, or suffers alteration, and the act of speaking is attended with pain or difficulty.

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[*] The papers which he notices are the following:

1st. R. P. Player *on irritation of the spinal nerves*, published in the Quarterly Journal of Science in 1821.

2nd. Essay on *irritation of the spinal nerves*, by Thomas Brown, M. D. Glasgow Med. Jour. May 1828.

3rd. Observations upon some forms of *spinal and cerebral irritation*. By John Darwall, M. D. Midland Med. and Surg. Reporter, May 1829.

Irritation of the *lower cervical portion* of the spinal marrow gives rise to a morbid state of the nerves of the upper extremities, shoulders, and integuments at the upper part of the thorax. Pain is felt in various parts of the arm, shoulder and breast; sometimes the pain takes the course of the anterior thoracic branches of the brachial plexus, while occasionally it is fixed at some point near the clavicle, scapula or shoulder-joint, at the insertion of the deltoid, or near the elbow, or shoots along the course of some of the cutaneous nerves. Frequently one or both of the mammæ become exquisitely sensible and painful on pressure, and some degree of swelling occasionally takes place in the breast, attended with a knotty irregular feel, when the neuralgic pains have existed a considerable time in that part. Prickling and numbness, tingling and creeping sensations, are often felt in the upper extremities; and also a sensation of cold water trickling over the surface. On rubbing the hand over the part affected, a soreness is frequently felt, which is described as not merely situated in the integuments, but also in the more deep seated parts. In the muscular system are observed most frequently a weakness of the upper extremities, sometimes referred particularly to the wrists, tremors and unsteadiness of the hands; also cramps and spasms of various degrees of intensity. Occasionally there is an inability to perform complete extension of the elbows, the arm appearing restrained by the tendon of the biceps; pain and tightness being produced in this part, when extension is attempted beyond a certain point. As far as I have observed, says Mr. Teale, the pains and other morbid feelings in the upper extremities and chest, are felt more frequently and more severely on the left than on the right side.

Females of sedentary habits appear particularly subject to these affections of the upper extremities, and it is not uncommon for them to complain of being scarcely able to feel the needle when it is held in their fingers, and of their needle or their work frequently dropping from their hands.

When the *upper dorsal portion* is affected, in addition to various morbid sensations, similar to those in the extremities, there is often a fixed pain in some part of the intercostal muscles, to which the name of pleurodynia has been assigned; and when this pain has existed a long time, there is tenderness on pressing the part.

When the *lower dorsal half* of the spinal marrow is the seat of the irritation, or subacute inflammation, the pleurodynia, when it exists, is felt in the lower intercostal muscles; frequently there is also a sensation of a cord tied round the waist; an oppressive sense of tightness across the epigastrium and lower sternal region; and soreness along the cartilages of the lower ribs, or in the course of the insertion of the diaphragm. Various pains, fixed and fugitive, are also felt in the parietes of the abdomen, throughout any part of the abdominal and lumbar muscles; the pain is frequently fixed in some portion of the rectus muscle, and not unfrequently in the oblique muscles or transversalis, a little above the crest of the ilium, particularly when the origin of two or three of the lowest dorsal nerves is diseased.

The affection of *the lumbar and sacral portion* of the spinal cord, often produces a sensation of soreness in the scrotum and neighbouring integuments, and the lower extremities become the seat of various morbid sensations, spasms, tremors, &c., for the most part resembling those which have been described as occurring in the upper limbs. The patients also complain of a sense of insecurity or instability in walking; their knees totter, and feel scarcely able to support the weight of the body.

That irritated or morbid condition of the spinal marrow, which occasions the symptoms just detailed, is not necessarily connected with any deformity of the spine or disease of the vertebræ. It may co-exist with these, as well as with any other diseases, but it so frequently occurs without them, that they cannot be regarded as dependent on each other.

Symptoms of affection of the brain frequently occur in conjunction with these diseases of the spinal marrow. These, however, must be regarded as the result of extension of disease from one part to another, most probably through the medium of the membranes. (13–19.)

Treatment.—When the neuralgic affection can be traced to some portion of the spinal marrow, the *principal remedies* are, local depletion by leeches or cupping, and counter irritation by blisters to the affected portion of the spine; attention to the regular functions of the bowels, and to diet. A repetition of the local depletion and blistering is often necessary, and sometimes at intervals for a considerable length of time. In a few very obstinate cases issues or setons have been thought necessary; and where the disease has been very unyielding, a mild mercurial course has appeared beneficial. Recumbency, during the treatment, is by no means essential, unless there be actual disease of the vertebræ. When there is a tendency to relapse, Mr. T. recommends a liniment to be applied to the spine, consisting of one part of *spt. tereb.* and two of *ol. oliv.* The preceding detail of symptoms and treatment is illustrated by nine cases. (20.)

Irritation of the Ganglia of the Sympathetic Nerve.

The ganglia of the sympathetic nerve appear subject to a state of disease, similar to that which has just been described, as occurring in the spinal marrow.

As the disease may be confined to one part of the spinal marrow, or may exist simultaneously in different portions, or may even pervade the whole extent, so the affection of the ganglia may be confined to one of these nervous masses, may exist in several, which are contiguous, or in ganglia, which are remote from each other; and, as there is reason to believe, the whole chain may occasionally be affected.

The disease of the ganglia is seldom found, says Mr. T., except in conjunction with that of the corresponding portion of the spinal marrow, whereas the spinal marrow is often affected without the neighbouring ganglia being under the influence of disease. Thus we frequently find symptoms of disease in a portion of the spinal marrow without any evidence of its existence in the corresponding ganglia; frequently the symptoms of both combined, and occasionally, but rarely, symptoms referable to the ganglia, without the spinal marrow being implicated.

The principal symptoms resulting from irritation of the ganglia of the sympathetic, are to be found in those organs, which derive their nerves from this source. They consist of perverted functions of these organs, and are exemplified by a variety of phenomena. The *involuntary muscles*, deriving their power from the sympathetic, have their action altered, as is evinced by spasms and irregularity in their contractions. The heart is seized with palpitations, the large vessels with inordinate pulsations; the muscular fibres connected with the bronchial apparatus, are thrown into spasm, constituting a genuine asthma independent of bronchial inflammation. The muscular fibres of the stomach and intestines become the seat of spasm, and of various other deviations from their natural operations. The *sensibility* of the organs, which derive their sentient power from the great sympathetic, is variously perverted, the nervous filaments being the seat of pains. The heart and lungs for instance, are subject to morbid sensations, bearing great analogy to those, which have been designated *tic douloureux*, when occurring in the spinal nerves. The stomach and intestines are liable to similar neuralgiæ, to which the names gastrodynia, and enterodynia have been applied. The kidneys, the bladder, and the uterus, are liable to the same perverted state of their sensibility. The secretions also undergo alterations—products being formed, which in health have no existence. This is exemplified by the enormous secretions of air, which sometimes occur in the stomach. Large quantities of clear transparent liquid are also secreted by this organ, constituting what is called pyrosis. The secretions of the stomach undergo variation in their qualities, rendering them unfit for the digestive process. It is probable that the secretion of the liver also experiences some alteration in these complaints. The urine is sometimes influenced, and I am inclined to suspect, says Mr. T., that some forms of diabetes partake of a neuralgic character. Leucorrhea is frequently a concomitant of these diseases, and ceases on their removal; but I am not prepared to say, that it is ever symptomatic of them. Irregularities in the catamenia are often observed, the discharge being generally in excess. (38-40.)

In conjunction with the symptoms denoting disease of the ganglia, *tenderness* to a greater or less degree *may generally be found* on pressing some part of the spine, and the seat of tenderness is near the part occupied by the particular ganglia from which the nerves of the disordered organ are derived.

With respect to the *treatment* of irritation of the *sympathetic ganglia*, Mr. Teale says, I have little to add to what has been said respecting the treatment of irritation of the *spinal marrow*. Leeches, cupping, blisters, &c., to the neighbourhood of the affected ganglia, constitute the essential part. He mentions several internal remedies, which may be useful as adjuvants or palliatives. These, however, he thinks seldom necessary; and when alone relied upon, without any treatment being directed to the affected ganglia, often fail, even of giving temporary relief. Of still less efficacy, either temporary or permanent, are external remedies, as leeches or blisters, when applied to the region of the heart or stomach, if these organs are the seat of neuralgia. (41–2.)

Here follow two very interesting sections on neuralgia of the heart, and neuralgia of the stomach, which cannot be condensed, nor inserted here entire. He then devotes two or three pages to a point which he says it is of great importance to bear in mind; viz. that these nervous affections sometimes accompany other diseases. The next eighteen pages are devoted to the inquiry, " how far the views, which have been taken, are consistent with anatomical and physiological facts ?" This inquiry becomes necessary, since the organs, which are most frequently the seat of these affections are supplied with nerves from two sources. Mr. Teale prosecutes this inquiry by investigating the following queries.

1. Is the muscular action of the heart, arteries, stomach, and intestines, dependent upon the *cerebro-spinal*, or upon the *sympathetic* system ?

2. Are painful affections of the heart, lungs, stomach, and intestines, seated in the filaments of the pneumo-gastric, or of the sympathetic nerves ?

3. Is the pneumo-gastric nerve the *only* agent in digestion,

or do the nerves of the sympathetic system exert any considerable influence in the digestive process? (56–73.)

After a very industrious research and comparison of the descriptions of *angina pectoris* by various writers, Mr. Teale comes to the following conclusion, viz.

"I have been induced to refer the various groups of symptoms, which have been described as *angina pectoris*, to an affection of some portion or portions of the spinal marrow, and of the corresponding ganglia of the sympathetic, by the following considerations.

1. The fact, as I have before observed, that most of the morbid phenomena exhibited in the extreme filaments of nerves, are seldom owing to disease in the nerves themselves, but to an affection of the nervous mass from which they are derived.

2. The co-existence of pain on pressing some portion of the spine with the symptoms constituting angina pectoris; and the correspondence of the painful part of the spine with the particular symptoms which are present; namely, tenderness in the lower dorsal portion of the spine in conjunction with the stomach affection, constriction, &c., and tenderness in the cervical spine, with pain in the arms, breast, and shoulders, and palpitations.

3. The relief obtained by local antiphlogistic measures to the spine; for instance, to the lower dorsal portion when the stomach is affected, and there is constriction; and to the cervical portion, when there is an affection of the arms and palpitations. (91. 108.)

In a short section on *colica pictonum*, Mr. Teale observes, that this disease appears attributable to neuralgia of several nerves, both of the spinal and sympathetic systems, in which opinion he is supported in part, if not entirely, by Andral.

In conclusion we would remark, that in the preceding pages we have not used marks of quotation, because the language is almost entirely the author's, as well as the ideas; and to any one who is extremely scrupulous with respect to authorship, we would recommend to affix such marks to the beginning and end of this review.

We now turn to Dr. Addison's interesting observations on the disorders connected with uterine irritation. This little volume formed the subject of some clinical lectures delivered to the students of Guy's Hospital, for the illustration of a very prevalent and important class of diseases which had long engaged Dr. A.'s attention. Our task must be limited to presenting a few extracts from the most important parts of the work, and linking them by some abstracts of the rest.

Dr. Addison introduces the subject by presenting to his readers a brief sketch of the doctrines of ancient and modern writers on the subject of general and local diseases. In this interesting part of his work the author shows that one party contends for the constitutional origin of local diseases; that another party with equal plausibility contends for the local origin of disorders formerly believed to be general; while finally a very numerous class of important diseases constitute at the present day, a sort of neutral ground, concerning which there appears to exist a truce among all parties. We have neither inclination nor space to follow Dr. A. in this exposition of the opinions of others on the topics in question, and proceed to state his views on the subject of uterine irritation. It is proper to state that Dr. Addison does not think it requisite to define the term irritation otherwise than by allowing that it is "in common use to signify a disturbance in the endowments or functions of a part independent of either actual inflammation or organic lesion." He allows that it may give rise to these effects, but believes that it may exist independent of either. The following description of the symptoms of the disease we offer in the language of our author.

> "The most frequent symptoms of uterine irritation are, *irregular menstruation*, the discharge being preceded or accompanied by pain in the back, loins, or thighs, or in the region of the uterus itself, and attended with forcing or bearing down; the *discharge being in excess* either in point of mere quantity or in continuance, or in recurrence; *tenderness of the womb itself upon pressure* made either externally or *per vaginam*, a tenderness in some instances so great as to interfere with the privileges of matrimony; and, lastly, *leucorrhœa*. The most frequent symptoms, however, are, unquestionably, *painful menstruation* and *leucorrhœal discharge*, although the former is often the only symptom acknowledged by the patient herself. Such, Gentle-

men, are the few plain, simple indications of a state of uterus which is repeatedly overlooked, although productive of the most serious disturbance both of the general health and of particular organs; disturbance which, when once produced, stamps a character upon the general and local ailments of the sufferer, strongly indicative, to the experienced man, of uterine irritation; a character which confirms him in the belief that it is from such irritation that the evil originates, and that it is to correct the condition of the uterine system that his chief attention is to be directed." 12.

Dr. Addison remarks that the predisposing causes of uterine irritation consist in those circumstances which create morbid sensibility, such as sedentary and luxurious habits, late hours, passions, and mental emotions, &c. But the most powerful is constitutional irritability commonly called the nervous temperament.

The *exciting causes* again, are *active exertion of any kind during the flow of the menses; frequent child-bearing, especially if the patient suckle her children herself; excessive venery, and, indeed, venereal excitement of every kind.* Married women, he thinks, perhaps suffer most from child-bearing, and from imprudence during the menstrual period; unmarried women, on the other hand, from similar imprudence, and peradventure, from causes of excitement of the genital organs, concerning which it is unnecessary to be very explicit. 14.

When a female is affected with this form of disease she generally first complains of feeling nervous, and in many cases of being low spirited. On examining the pulse, the physician perceives a tremor in the hand. There is much mental agitation, with sobbing, quivering of the lips, a flow of tears, &c. this very often comes on suddenly, in young and susceptible patients, when the medical attendant attempts to soothe them.

" She tells you, that without any assignable cause, she gradually declined in health and spirits; that she has lost her wonted alacrity, has become indolent, and is easily fatigued by comparatively slight exertion; that she is readily flurried; that her heart often beats, flutters, or palpitates; that the impressions made upon her mind are altogether disproportionate to the causes producing them; that she is very prone to weep, and occasionally experiences sudden and transitory feeelings of alarm and dread especially during the night, without being able satisfactorily to account for them; in short, that both body and mind are in a morbidly sensitive condition, whilst general distress is strikingly depicted in her pale or dejected countenance. If you proceed in your inquiries to ascertain the state of the uterus, you are perhaps informed that she is regular; but if interrogated more narrowly, it will almost uniformly be found that she suffers pain either before or during the flow, in the back or loins, and that in the intervals she is troubled with leucorrhœal discharge. To these inquiries she gives a reluctant reply, will often, perhaps from delicacy, conceal the truth, or if she acknowledge it, will probably add, 'Oh, that is of no consequence; that is not my complaint; I have long been accustomed to that, and it does me no harm;' and then winds up the case with telling you that she has taken a load of tonic medicines without benefit. If you ask her whether such questions were ever put to her before, you are generally answered in the negative. Such a case as this, with slight modifications, is of common occurrence, yet it most frequently happens, that, with the general disorder, we have decided derangement of some internal organ or organs; and of these, the organs of digestion appear to be almost uniformly the first to participate; indeed the derangement of the digestive organs, to a greater or less extent, is so commonly associated with the general affection I have described, that one cannot but conclude that the general affection is most materially influenced, if not in part produced by it. It is sufficient, however, for our purpose to know that the exalted susceptibility of the general system and this deranged condition of the first passages, are very commonly co-existent, however they may stand in the relation of cause and effect.

"The first appreciable disturbance of the stomach is most frequently a tendency to *flatulency*, which flatulency is productive of different effects in different individuals, although, in all, the stomach itself appears to be in a morbidly irritable condition, so as greatly to modify or aggravate the consequences that would otherwise arise from the presence of such flatulency. The patient experiences uneasiness at the scrobiculus cordis; she complains of a sense of load or distension after meals, or, if the stomach be uncharged with food, of prickings and anomalous pains in the organ, all of which symptoms are pretty uniformly relieved for a time by the expulsion of flatus from the stomach. In other cases, the irritation produced by the flatus about the cardiac orifice, excites a sympathetic affection in the throat, a sort of globus hystericus, which is variously described by patients, some calling it spasm, whilst others compare it to a mechanical obstruction, and indeed one lady somewhat fancifully compared it to a bullock in her throat. It is a sensation, however, which will often last, in a greater or less degree, for days, or even weeks, with little intermission.

"At other times, the patient suffers from repeated vomiting, or is perhaps seized suddenly, but only occasionally, with vomiting, preceded, accompanied, or followed by an irregularly inverted action, chiefly of the œsophagus, and attended with an ascent of flatus; so as in some instances, to threaten suffocation." 18.

The patient is liable, while labouring under this uterine irritation, to be attacked by painful affections in particular organs or parts; and especially in the abdominal viscera. The principal of these are—

"1st. A pain seated under the left mamma, or under the margin of the ribs of the same side. 2dly. A pain under the margin of the ribs of the right side. 3dly. Pain in the course of the descending colon. 4thly. Pain in the course of the ascending colon, especially towards the right hypochondrium. 5thly. Pain affecting the abdomen generally. 6thly. Pain in the region of the stomach. And lastly, Pain in the region of the kidneys, sometimes extending down the course of the ureters to the bladder." 22.

Some doubts exist as regards the real seat of these painful affections, owing to the circumstance, that the natural functions of the organs or parts are not so necessarily disordered as to indicate in a clear manner the localization of the pain. Some of these affections are of long continuance and the source of considerable sufferings. This is particularly the case with the pain under the mamma, or under the margin of the ribs of the left side, which is much more frequently met with than that of any other part, and will often continue for weeks and even months with little intermission. On this subject our author makes the following remarks.

"This pain is very circumscribed; it is not necessarily or constantly increased by a deep inspiration or by external pressure, although this is occasionally observed; it is seldom attended with cough; it is not materially affected either by a charged or by an empty state of the stomach, but varies in its intensity, and now and then goes off altogether for a few minutes, hours, or even days, or the pain shall subside and be succeeded by a mere uneasiness or sense of fulness in the part. This, pain, as I have said, is of extremely frequent occurrence, and is very often associated with palpitation of the heart, or, what is much more usual, with unnatural pulsation of the organ, if I may be allowed the expression; *i. e.* the patient is conscious of the heart's action, or she feels as if its impulse were communicated to a part so sensitive as to excite distinct sensation, which, you know, is not the case in a state of health." 23.

Dr. A. is inclined to refer this pain to the cardiac orifice of the stomach, thus differing from Mr. Tate who attributes it to the cardiac plexus, or intercostal nerve. Dr. A. grounds his opinion on the following fact. A young woman in whom this painful affection had long prevailed to a considerable extent died suddenly in a fit. The only proof of irritation that could be detected on examination of the body, was " a series of very delicate vessels, or rather a blush of redness surrounding the cardiac orifice of the stomach, such as might be supposed to be the result of any continued irritation or spasmodic action." The author is particular in expressing his opinion that it was not inflammatory.

As regards the pain which occasionally occurs under the right rib, it is remarked, that though sometimes circumscribed, it usually extends from the scrobiculus cordis, along the margin of the ribs, as far as the loin of that side. It is occasionally increased by a full inspiration, and generally aggravated by external pressure. There is some doubt as regards the seat of this pain, Dr. A. having sometimes thought himself justified in referring it to the colon, sometimes to the duodenum. The abdomen is in some instances affected with pain, closely resembling that which is characteristic of peritonitis. The resemblance is so close, that our author has often been deceived by it. It is accompanied in some cases with a tympanitic, in others with a flaccid state of the bowels. Dr. A. remarks that the disease might be termed a neuralgia of the abdomen. The pain in the stomach is usually distressing, and well marked;—the more intense the disorder, the more positive is the evidence of its being really seated in the organ mentioned. It sometimes comes on suddenly, occasioning great agony, and manifesting an intermittent character. Some patients are affected with pain in the region of the kidneys, sometimes extending down the course of the ureters to the bladder. In some cases the bladder itself is the seat of pain. In both forms of the complaint dysuria is a general attendant.

On the subject of the diagnosis, Dr. Addison makes the following remarks:

" Whenever a female complains to you of pain under the left breast, with or without palpitation or pulsation of the heart; of pain in the right hypochondrium; in the situation of the left or right colon; or of acute pain generally over the whole belly, or in the region of the kidneys or bladder—always be upon your guard, and if on inquiry you find a few, or many of the constitutional symptoms I have described, together with indications of uterine irritation, as shown by pain in the pelvis, in the loins, or in the thigh, before or during the catamenial flow; by too frequent or too profuse menstruation; or by leucorrhœal discharge; I say, when you find such an assemblage of symptoms and circumstances, your suspicions will amount to a high degree of probability, that the complaint is not of an inflammatory nature." 31.

We need hardly remark that all these symptoms may proceed from organic diseases of the uterus. On this account the organ should, if possible, be examined.

The indications of cure as set down by Dr. A. are, 1st, to correct the morbid condition of the uterus; 2d, to remove or mitigate the violence of troublesome symptoms in any individual case; and 3rd, to restore tone and vigour to the general constitution. He opposes the instructions usually given in respect to cupping the loins, leeching the pubes, to the administration of purgatives, anodynes, baths, &c., and gives a decided preference to local applications made to the uterus itself. Dr. A. condemns blood-letting, unless in the case of immoderate menstruation, with headache and other symptoms of vascular plethora. The following remarks on the subject of local applications will be read with interest.

"The applications to which I allude, are *cold astringent washes*, injected *per vaginam* by means of a proper syringe. The ordinary womb syringe answers the purpose exceedingly well, but one of any convenient shape may be used, provided it be sufficiently large to contain from four to six or eight ounces of fluid. The injection should be introduced with such a degree of force, as shall secure its application to the upper part of the vagina, and to the os uteri; and the operation should be repeated two, three, or four times a day, according to the circumstances of the individual case.

"Either the mineral or vegetable astringents may be used, the former however I prefer, as they do not stain the patient's linen, and consequently are not so much objected to. With respect to the precautions to be observed in the employment of these injections, very few are required beyond what common sense would dictate. Should the injection occasion smarting, which is by no means unfrequently the case at first, it may be diluted with water, or water alone may be used till the original tenderness subsides, which for the most part it will soon do. It will also be prudent to instruct the patient to relinquish it a little before the expected period of menstruation, and to resume it as soon as that period is over. These are almost the only precautions I have ever deemed it necessary to observe. Although in very irritable habits, and especially when the stomach is liable to be affected with pain and spasm, it may be as well to direct the wash to be used tepid at first, gradually diminishing the warmth till it be brought to the ordinary temperature of the patient's apartment, which will pretty uniformly be borne exceedingly well after a time, except perhaps during a few of the coldest months in winter. The wash I most frequently employ is the *Liquor Aluminis Compositus*, of the London Pharmacopœia, that is, two drams of *alum*, and two drams of *sulphate of zinc*, to a pint of water. This practice must be persevered in for a length of time, proportionate to the obstinacy of the case and the effects it produces. Indeed, I myself recommend females never to relinquish it, but to employ it from time to time, as long as they continue to menstruate, to prevent the recurrence of the disorder, and its unhappy consequences. I have said that the patient should desist from the use of the injection, a little before and during the menstrual period, but she ought also to be specially cautioned against using any violent exertion, or undergoing any unusual fatigue at that time, as nothing so completely thwarts your purpose as imprudence committed whilst the irritable uterus is performing its functions."

This wash is to be desisted from, and the patient is directed to remain quiet in bed, whenever the disease is characterized by frequent and excessive catamenial discharge.

To allay irritation, purgatives are recommended. The article of that class which Dr. A. prefers, is castor oil, when it agrees with the stomach. In other cases compound extract of colocynth, with blue pill or calomel, and hyoscyamus are preferred. For neuralgia of the abdomen, oil of turpentine is recommended in doses of from two drachms to half an ounce, with three or four drachms of castor oil.

We pass over, from want of room, our author's valuable practical remarks on the means of removing occasional symptoms, and shall only say a few words on the mode he recommends for fulfilling the third indication—the restoration of health and vigour to the general constitution. For this purpose tonics have been early and freely employed; but so far from proving successful, they have, in the majority of cases, given rise to very unsatisfactory results. Dr. A. attributes this to inattention on the part of the physician to the local irritation of the uterus. He remarks, however, that the sulphate of zinc may be resorted to early, provided it do not offend the stomach. The dose is a grain night and morning either alone or in combination with extract of conium or hyosciamus, the pilul. galb. compos. or extract of gentian or bark. The dose of the sulphate may be gradually increased and the diet should be carefully regulated.

We regret that our limits will not allow us to enter more into details, and force us to refer our readers, for more particular information, to the work itself, and especially to the interesting cases, with the details of which the author has closed his volume.

ART. IV.—ANATOMY OF THE GROIN.

Drawings of the Anatomy of the Groin; with Anatomical Remarks. By WM. DARRACH, *M. D. Philad.*, 1830. *Fol. pp.* 28.

Having been compelled, by unavoidable causes, to postpone a notice of this work which we had intended to lay before our readers in the last number of this journal, we are free to confess our great regret at the necessity of delaying for an entire quarter the introduction of a volume so creditable as this one to our American Medicine; for we do rejoice unfeignedly, at every indication of an increased spirit of enterprise, and enlarged sphere of observation among the members of the profession on this side of the Atlantic. With a population of twelve millions, with schools and colleges in every district of the country, with ample means of cultivating the sciences that relate to medicine, the American press furnishes us with the smallest pittance of medical writings; content still, as heretofore, to do little more than republish the writings of European physicians, or venture upon a timid and desultory effort to enlighten the professional mind by notes of "Cases" or short and hasty essays, in periodical works, which, as they are rarely supported during a long series of years, so they become the early prey of an oblivion from which their contents, by their very nature evanescent, must fail to rescue them.

We hold then, in view of these circumstances, that the members of the medical body, are under obligations to those who by a more formal and orderly method, endeavour to secure to them the more permanent results of study and observation, and that they ought to look with a favourable eye upon every such endeavour; judging the merits and usefulness of the production, however, with a critical and severe judgment, the more necessary perhaps among a people where a standard yet remains to be set up, and a national medicine yet to be formed.

Though these reflections were occasioned by an examination of Dr. Darrach's work on the Groin, we would not have them understood as bespeaking the favour of the public for that gentleman's performance—far from it, we feel confident that that favour will be acceded to it upon its own merits and not upon considerations of what might be called *good civism.* The subject is too interesting to the surgeon, and the development of all the minute points connected with the operations for hernia too important, for it to fail of interesting all those concerned in those dangerous and difficult cases; we shall proceed therefore without further preface to lay before our friends some remarks on Dr. Darrach's volume.

"The original drawings of this publication were executed by M. Chasal, of Paris, from dissections made by the author, in the Pavilions de l'Ecole de Médecine during the winter of eighteen hundred and twenty." *Preface.*

The objects of the publication are to add something to pathology, and to precision in practice, to show the mechanical means employed in the human subject to connect the anterior parietes of the abdomen with the lower extremities, and to furnish some observations on points of anatomy not heretofore noticed.

The first chapter is entitled "On the Term Fascia."

Dr. D. objects that the indefinite application of the term fascia, which has heretofore designated parts differing essentially both in their structure and uses, has been productive of perplexity, and even of a dislike to the term itself, which by some has been conceived of as exhibiting rather the artificial work of the dissecting knife, than a display of structure as it is really found in rerum naturæ; but notwithstanding, there is a fascial system, which may be traced as distinctly as the serous or mucous system, and the knowledge of which is deemed by the author to be highly important.

There is a phrase in common use, the *fascia superficialis*, which furnishes us with an example of the incorrect or indeterminate application of the term, for the fascia superficialis consists only of the subcutaneous cellular tissue which lies on the abdomen and upper part of the thigh. Now, the protruded bowel in inguinal hernia, carries before it a portion of the cellular tissue which is situated under the tendon of the external oblique muscle, and when it reaches the abdominal ring, it also pushes before it a portion of cellular tissue (called fascia superficialis) situated on the outside of the same tendon. By disease, or pressure, this cellular tissue becomes compacted or thickened, and for surgical purposes receives the name of fascia.

In crural hernia, also, the tumor is very generally covered with a sac, which is exterior to that formed by the peritoneum, and which consists of the protruded and condensed cellular tissue that lies on the outside of the peritoneum, or betwixt it and the fascia transversalis—to this exterior coat the appellation of fascia propria has been given.

The phrases fascia propria and facia superficialis are to be regarded then as surgical phrases, and not as the expressions of anatomical structure.

But a very positive, and anatomical signification is attached to the terms fascia lata, iliaca, transversalis—for these are real *fibrous* membranes the essential structure of which, according to Dr. Darrach, is this, viz. they consist of parallel, inelastic, shining fibres, united by cellular tissue, and unconnected with muscularity.

In some places fascia consists of cellular membrane, strengthened and rendered less elastic by a few of the above mentioned parallel fibres; as in the upper part of the fascia iliaca. On the back of the thigh the fascia resembles, in some measure, the sclerotica and the dura mater; these last named tissues are, however, composed of interlaced fibres, a circumstance in which they radically differ from the true fascia, whose lines although they decussate or cross each other, are never interlaced or woven—their various degrees of density and firmness depending on the number of lines and number of layers.

We shall copy the whole of the interesting paragraph entitled "Elements of fascia."

> "The fascial system is then composed of two elements of opposite properties. The cellular tissue, which is the bond of union of the fibres, possesses the power of dilatation and contraction, or in other words, elasticity and contractility: whilst the shining fibre is, like tendon or ligament, destitute of these qualities. As, thefore, the one or the other of these ingredients predominates, it will modify the character of the structure, permitting it to be elastic and contractile when the fibres are few, and making it unyielding when they abound; more so in that case in which the fibres are in close contact and in several layers. A membrane is thus formed, well suited to facilitate, increase, and direct the action of muscles, protect the large arteries, veins, and nerves in the extremities, and to furnish a secure medium of attachment between the extremities and the trunk, in addition to that made by the ligaments of the joints." p. 10.

Being compelled by the necessity of economising the space allotted to this article, we must pass over without special notice, the very clear and instructive course of observations upon the fascia lata, the paragraphs on "fibres reflected from the surface," on "abrupt termination of the fibres," and "apparent irregularity of fibres," &c. &c.

In Chapter II. after giving a description of the plate, the author proceeds to treat of the adipose and cellular tissues of the integuments. The adipose tissue of the integuments exists in immediate contact with the derm in every part of the body, except the penis and scrotum, the external parts of the female organs of generation, the perineum, the axillæ, and eyelids.

It is most abundant on the nates and soles of the feet—it is found more abundantly upon the posterior than upon the anterior surface of the body. It consists of "an assemblage of delicate transparent cysts filled with fat; and of adventitious filaments, which traverse the cysts in various directions. They vary in form and size, being large and irregular on the abdomen, and small, spheroidal, and of a granulated appearance upon the face. Those in immediate contact with the derm are minute and uniform, while such as are situated farther from it are larger, and those that are situated still more interiorly where the adipose tissue unites with the subjacent cellular tissue lose the distinct form of independent cysts, these cysts being converted into irregular communicating cells filled with flakes of fat.

These observations may be verified, according to the author, by a long process of maceration which converts the oil into adipocere, and reduces the skin to a soft state in which it may be separated by washing.

If it be desired in any case to separate the globules of fat from the skin, it may be done by macerating it in water, whereby it becomes softened and thickened, and then subjecting it to the action of alcohol, which hardens the derm, and detaches the adipocere, leaving the portion of skin full of conical pits or depressions, and still retaining the filaments of the adipose tissue.

These filaments, when examined near the under surface of the derm, are found to be "opake whitish fibres, thread-like prolongations of the derm." Upon some parts of the body they are converted, as they dip into the tissues, into laminated cellular membrane, and in others, into inelastic shining fibres.

The author's observations upon the uses of the "filaments," are too much in extenso to admit of our quoting them at length, but we commend them to our readers as extremely well arranged and expressed, and particularly as they serve in a clear and definite way to illustrate the pathology and practice of some of the affections of the dermal tissues.

There is also a section on the laminated cellular tissue, which tissue consists "simply of transparent laminæ, which are so connected with each other as to make communicating cells of various forms and sizes." Dr. Darrach remarks, that like other parts of the body, the adipose tissue is liable to inflammation, which in its effects will be modified by the peculiarities of structure which distinguish it.

In the sole of the foot, the back of the thigh and the nates, the peculiar phenomenon of inflammation of this tissue, may be studied with most advantage—and with a view of laying before us his own views of the nature and treatment of its inflammations, the Doctor enters into the following analysis of the vital properties of the structure.

> "The *filaments* are endowed with a degree of life, analogous to that of tendon, ligament, and derm, exhibiting mechanical rather than active vital properties, and though this obscure vitality renders them less liable to irritation, yet when inflamed they readily mortify and slough."
>
> "The fat, being only a secretion and therefore possessing no vital function, cannot, merely as a secretion, be the subject of morbid action, but it may become if retained an irritant to its enveloping cysts."

The *cysts*, unlike the two former constituents, are organized secreting membranes, consisting of arteries, veins, absorbents, and nerves; subject to change in size, and alteration in structure; and susceptible of the adhesive, serous, and more particularly the *suppurative* inflammation."

From the above, Dr. Darrach thinks that the progress and symptoms of inflammation in the adipose tissue, may be satisfactorily traced.

He regards this progress and these symptoms as depending upon, 1st, an inflamed state of the fatty cysts: 2nd, upon stricture of the inflamed parts, and 3rd, upon disorganization.

The application of an irritant to this tissue, produces an inflammation of the tissue of the cysts, leaving the *fat* and the filaments unaffected; and in this state the fat may be either absorbed or become, in consequence of an altered condition of the vitality of its containing organs, a positive irritant, whereby the inflammatory processes are augmented and propagated.

The second state spoken of by the author, is stricture,—if for example, there be a thick derm on one side, and on the other an unyielding fascia, and these two are connected by means of a great number of filaments passing from one to the other, and the tissue is rendered full and tense by the effusion of coagulable lymph, and by enlargement of the bloodvessels of the part, there will be a dangerous stricture of the latter.

The third state is that of *disorganization;* the structure of the cysts is too delicate to admit of their sustaining the inflammatory action, for a great length of time, while under the *stricture* produced as has been above explained,—they soon mortify, while the filaments also begin to inflame and slough, and we next have an extensive abscess filled with pus and floating shreds of sloughy matter, consisting of the detached and disorganized filaments and cysts.

The author, upon the ground of the above explanations, is satisfied that after attending to the first indication, viz. to remove the local irritant, and arrest the inflammatory action by the antiphlogistic processes, the chief reliance of the practitioner will be necessarily placed upon the removal or mitigation of the stricture, by incisions into the derm of the affected part, extensive and deep in proportion to the requirements of the particular case; " all the other indications," says he, " lead to a palliating and expectant practice. This alone will remove the inflammation before it produces disorganization, abscess, and sinking of the system."

We feel compelled to pass over the plain and very sensible observations upon the distinctions and resemblance betwixt common phlegmon and anthrax, in order to notice at once the subject of phlegmonous erysipelas.

Dr. Darrach states that erysipelas phlegmonosum, is an acute inflammation of the skin, subsequently involving inflammation of the *sub-dermal portion* of the integuments.

Now the *sub-dermal portion* of the integuments, is either cellular tissue, or adipose tissue, or a combination of both sorts—and hence the author very properly calls in question the correctness of Mr. Lawrence's definition; Mr. Lawrence's definition is as follows:

> " Erysipelas phlegmonosum, an acute inflammation of the skin and *cellular tissue*, with firm, general, and deep red swelling of the affected part, ending quickly in suppuration and sloughing."

" If," says Dr. D. " it be admitted that a tissue, consisting of cysts, fat, and filaments, is different from one which consists simply of laminæ disposed into communicating cells, these two tissues having also a different location and different uses, then the phrase *cellular tissue* in the above definition cannot anatomically embrace in its signification, both the subcutaneous adipose and the subcutaneous cellular tissues."

Dr. Darrach's phrase "*Sub-dermal portion* of the integuments," embraces every variety; for example, on the eyelids, perineum and labia, &c., it will be cellular tissue; on the posterior part of the body, the nates, the palms of the hands, and soles of the feet, it will be adipose tissue; whereas, upon the anterior surface of the body, especially the abdomen, it will be a modified union of both the cellular and adipose tissues. The author here enters at some length upon a more detailed examination of the several varieties of phlegmonous erysipelas growing out of these various subdermal structures: for these details, which are certainly to be esteemed in a high degree interesting and instructive, we refer to his work. As our own limits do not admit of our following him throughout, and especially, as the principles of his exposé have been clearly stated, there will be less difficulty in making the specific application of them, and the quotation at length, which we are just going to make, will set his views in a sufficiently clear light.

We have already noted the author's opinion upon the importance of incision in the treatment.

"Phlegmonous erysipelas calls for three modes of incision, suitable to the three above specified varieties of the disease. The first consists of numerous punctures made with a lancet into the affected part. This method originated with Dr. Dobson. He calls it his mode of abstracting blood as a substitute for leeching. The number of punctures he advises, to use nearly his own words, varies according to the extent of the disease, but is rarely under ten, and seldom exceeds fifty; the depth of each puncture also varies, according to the greater or less tumefaction of the parts: from two, to four tenths of an inch, however, he considers the proper respective depths. He repeats the punctures to the number and extent required, about twice a day, and often in bad cases, three or four times." "The author of this method makes a general application of it in all cases of erysipelas, but it is intended in these pages to limit its use to the *cellular* variety of phlegmonous erysipelas; not in order to relieve *stricture*, but to reduce *inordinate distention* by allowing a free discharge of blood and effused serum.

The second mode is that proposed by Mr. Lawrence, and consists in making one or two long and deep incisions. "The objections," says Dr. D., "which have been made to this bold practice of Mr. Lawrence, lie only against its general application to the three above established varieties of phlegmonous erysipelas. In his twenty-second case, an incision was made along the whole breadth of each eyelid, and through the entire depth of the inflamed and swollen cellular structure. He states that the palpebræ were enormously *swollen* and *shining*, i. e. distended with serum. Now, this constitutes, as has been shown, the cellular variety of erysipelas, like that which occurs in the perineum, labia, penis and scrotum, where the adipose tissue is absent, and calls exclusively for the *early* employment of the mode of puncturing recommended by Dr. Dobson."

"The practice of long and deep incisions seems also injudicious in cases which involve a great extent of surface. But this practice of Mr. Lawrence is indispensable in the adipose variety of phlegmonous erysipelas, where the chief indication is the relief of stricture."

The author then speaks of the third mode, viz. that of Mr. Hutchinson, which consists in making several deep but short incisions into those affected parts in which the disease is most active. This mode the author regards as peculiarly adapted to the management of the "*adipous-cellular*" form of erysipelas, as the short and deep incisions fulfil the two indications,—to relieve the moderate degree of stricture and remove any deep-seated distention.

Chapters III. and IV. are occupied with descriptions of the plates, blended with surgical and anatomical remarks, which it is out of the question for us to attempt to analyse in this place. Such an analysis could not be given to any profit, without being accompanied with the plates for the purpose of immediate reference. And we shall not, therefore, attempt to do what we are convinced cannot be well done—but we shall refer all the remaining parts of the book on which we have just touched as upon the threshold, to our readers, with the single remark that it contains a great deal of sound practical sense in a small space.

Of the plates themselves, we can speak only in terms of commendation; indeed, the fact that they were executed under the eye of the anatomist, from dissections made by himself, affords prima facie evidence of their correctness and clearness.

ART. V.—HOSPITAL REPORTS.

The Dublin Hospital Reports and Communications in Medicine and Surgery. Vol. 5th. Dublin, 1830.

We have great pleasure in calling the attention of our readers to another volume of the highly valuable work, the name of which is at the head of this article. By giving an abstract of its contents, we shall enable them to form a just estimate of its merits, and shall at the same time be performing our duty as chroniclers of passing events in medicine. The quarterly sketch of the condition of our science and profession which it is our office to present, and our ambition to render as complete as possible, would be imperfect without the introduction of the new facts recorded in the Dublin Hospital Reports. In order that these facts, with the most interesting of the accompanying remarks, may be compressed within the limits of a review, it is necessary that we should forego the privilege of comment or criticism, and confine ourselves to the more humble but not less useful task of analysis.

The work is divided into two parts, the first of which consists of clinical reports of cases which occurred in the Meath Hospital, during the years 1828 and 1829, by Drs. Graves and Stokes; the second, which is the most extensive, embraces miscellaneous communications from various sources on medical and surgical diseases. We commence with the reports.

Arteritis. The volume opens with a highly interesting case of *arteritis.* The patient, a robust middle aged man, was first affected with alternate sensations of cold and heat in the toes of the right foot; and these sensations soon extended to the leg, attended with formication and diminished power. Pain afterwards came on in the limb, which, in the course of a month, became cold and totally destitute of sensation from the middle of the thigh downward. At this period he was admitted into the hospital. His intellect was perfect, the pulse 96 in the minute, small and soft. The temperature of the affected limb was 58°, that of the other parts of the body natural. The femoral artery felt like a hard cord, was painful on pressure, and did not pulsate. By means of the stethoscope it was ascertained that pulsation was also wanting in the external and common iliacs of the affected side. "The latter observation," say the authors, "which we believe to be the first of the kind, was made with great ease and certainty. Having traced the pulsation of the aorta with the stethoscope, we followed the course of the vessel to the umbilical region, where the pulsation could be distinctly heard passing to the left side in the direction of the common iliac. This, however, was altogether wanting in the course of the right common iliac." It was concluded that the right common and external iliacs, and the femoral artery, were in a state of permanent obstruction. The patient died the day after his admission; but previously to his death, œdematous swelling took place in the limb, a purplish patch appeared at the ham, and the thigh became painful on pressure. Of course there was no time for advantageous treatment. Dissection revealed the following appearances. The left ventricle of the heart was in a state of active aneurism. In the innominata some red patches were observed, in which the lining membrane was thickened and softened. The ascending portion and arch of the aorta, the carotid and subclavian arteries were perfectly healthy, as was also the descending aorta to within six inches of the bifurcation, where a red slender fibrinous clot was found extending downward, beneath which the membrane was of a deep red colour, thickened, and soft. The right common iliac viewed externally was distended and livid, the left apparently healthy. On slitting down the former, it was found completely plugged up by a dark clot, and this state of things extended to the external and internal iliacs, the gluteal and obturator arteries, the femoral and profunda, and throughout the arteries of the limb as far as they could be traced. The clot in the tibial arteries was not red, and was much firmer than in the femoral and iliac arteries. The lining membrane was throughout the diseased vessels soft and thickened. In some places the clot was separated from the internal coat of the vessel by a layer of dark-coloured puriform matter, in others it was adherent. No disease was detected in the veins.

The symptoms of the case, as well as the appearances on dissection, evince that the disease commenced in the extreme branches of the arteries of the foot, and gradually extended upwards. The firmness and paleness of the clot in the lower portions of the arteries of the limb, while in the femoral and iliac arteries it was soft and red, are sufficient evidence of this fact.

An interesting circumstance in the case was the effort of nature to supply the limb by means of anastomosing branches from the opposite side, after the access of blood through the usual channels had been completely obstructed.

The extreme coldness and utter insensibility of the limb were succeeded a little before the death of the patient by a partial restoration of warmth and sensation: and the occurrence of superficial gangrene under these circumstances, is a new evidence of the danger of a too sudden restoration of circulation to a part in which it had been suspended.

The diagnosis of this affection in its advanced stage is not difficult. The coldness of the limb, the absence or weakness of pulsation in the arteries, and the paralysis, unconnected with spinal or cerebral affection, are sufficient to indicate the nature of the complaint. In the early stages there might be greater difficulty in forming a correct judgment: but a comparison of the temperature and the arterial pulsation of both limbs, might lead to a discovery of the character of the complaint, and the timely interposition of remedies calculated to subdue the inflammation.

Aneurism of the abdominal Aorta. Two cases of aneurism of the descending aorta are detailed, which are chiefly interesting from the circumstance, that in both there was a double pulsation in the tumour perceptible to the touch, and a double sound discoverable by the stethoscope, closely resembling the sensations imparted to the hand and ear by the heart itself, and depending, as the authors suppose, upon the absolute contact of the tumour with the pericardium. In one of the cases there was the additional peculiarity, that the heart was displaced with the advance of the disease, beating first in the epigastrium after leaving its natural situation, then on the right side at the sternal end of the fifth rib, and ultimately in the intercostal space of the third and fourth ribs, where it became fixed.

As the diagnosis of aneurism of the abdominal aorta is sometimes very difficult, and "as there is as yet no general history of the disease on record," we cannot occupy a portion of our space better than by quoting from the work under review an account of the symptoms by which its existence and progress are indicated.

"The first and generally most distressing symptom is pain in the back. The situation of the pain is in the lumbar region, but it may extend upwards or into either hypochondrium, and sometimes shoots down into the thighs or scrotum. It is generally constant, but has been observed to intermit completely for a considerable space of time. It is frequently extremely acute, particularly during its exacerbations, when it becomes intolerable. In other cases, however, it has been dull and fixed. It resists medical treatment remarkably, but is occasionally alleviated by leeching the loins, and the use of large doses of opium. Constipation aggravates and excites it, and in two cases it became severe during the evacuation of the urine. It is not accompanied by heat of the part, and may continue long without external tumefaction. Change of position and pressure on the loins are among its most frequent exciting causes. The patient is occasionally subject to severe fits resembling the worst form of painters' colic, and like it accompanied with spasm of the external abdominal muscles.

"In some the stomach is irritated; there is nausea, and in one case pyrosis often took place. The appetite, however, is generally good, and emaciation rarely occurs. Occasionally symptoms, indicative of obstruction of the pylorus, have been observed. Constipation is not uncommon, and at times forms so prominent a feature, as in combination with pain felt in the region of the colon, to induce the belief of stricture of the large intestine. The urine is sometimes scanty, at others unaltered in quantity or quality.

"The heart becomes engaged after the disease has continued for some time: but the symptoms are not constant, being most observable during the paroxysms of the pain. The pulse in the earlier stages of the disease is frequently natural.

"Decubitus on the back or left side often produces great distress, and brings on palpitation, which subsides on the patient resuming the posture of ease, which is often on his face, by which the pressure is taken off the diseased vessel.

"Coldness and numbness of the lower extremities are not unfrequent; and in two cases paraplegia has occurred, induced by caries of the spinal column producing spinal meningitis, or exposing the cord to pressure.

"The tumour may not become externally perceptible during the whole course of the disease. When it does point it has been almost generally at the left side, at a level with the last dorsal vertebra. As it increases it will press on the stomach, heart, or liver, and displace some of the viscera, so as to push the heart to the right side, or depress the liver into the abdominal cavity.

"The stethoscopic phenomena are those of aneurism in general, but in our case double pulsation occurred from pressure upon the heart. A *bruit de soufflet* is sometimes heard in the epigastric region.

"There is absence of fever. This is a most important sign, very remarkable in all the cases which we have heard or read of.

"Should the disease be detected in its early stage, the method of Valsalva should be diligently employed. It must, however, be remarked, that in Dr. Proudfoot's case, and particularly in that recorded by Dr. Beatty, an opposite plan appeared to give most relief. Can this be explained, by supposing, that in consequence of the use of a nutritious diet, a more coagulable blood was formed, and that thus the disease was for the time suspended."

The double pulsation of the aneurismal tumour, observed by the authors in their cases, is considered important by them, as Laënnec and Bertin have given the single pulsation as a diagnostic of all aneurisms of the aorta, including those of the ascending portion. A case of double pulsation is recorded by Cruvelhier, in his Anatomie Pathologique, but does not appear to have been thought by him an important circumstance.

As illustrative of the extreme difficulty of a correct diagnosis, in some cases of aneurism of the abdominal aorta, we are strongly tempted to give the details of a case communicated by Dr. T. E. Beatty, and recorded in the second part of the volume. The narrowness of our limits, however, precludes this gratification, and we must content ourselves with briefly touching upon some of its more prominent points.

The patient, a gentleman aged thirty-three years, was attacked with dull deeply-seated pain in the loins, which, upon any sudden change of position, became exceedingly acute. After a few weeks, it extended to his abdomen, and was attended by flatulence and tympanitic distention; but there was no increase of pain on pressure, nor was any tumour discoverable. Various plans were tried for his relief; and occasionally the symptoms so much abated as to afford reason to hope that a cure might be effected: but after an intermission of a few days or a week, they invariably returned with all their former violence. About three months after the first attack, the character of the pain underwent a change. Instead of a shock upon any sudden change of position, he now experienced "a severe spasmodic twisting and pulling of the whole tract of the intestines," which would last to a degree of torture for some hours and then subside. There was besides an almost unceasing dull pain or uneasiness through the whole abdomen, which was aggravated by the descent of food into the bowels, and was always relieved by evacuation. The application of remedies appeared again to produce a favourable effect: but the relief was only temporary; and for several months the disease went on with occasional remissions of suffering, but with no permanent abatement. There was a constant necessity for keeping the bowels free, as the least accumulation for above five or six hours brought on pain and sometimes violent spasm. The pain occasionally changed its seat from one side to the other, and at length extended to the hip and down the thigh, and he was frequently affected with convulsive twitchings of the legs. During one year that he had now been affected, he had undergone great diversity of treatment, and received the attention of several medical men, none of whom appear to have suspected the nature of the complaint. At the end of this time by the advice of his attending physician, he went to London and afterwards to Paris, in both which places he was examined by the most eminent practitioners, with no better success. Even Andral failed in discovering the cause of his complaint, which he pronounced to be neuralgia of the bowels. During his absence, however, he became much better, and there seemed every reason to believe that a perfect recovery would be effected; but on his return to Dublin, he experienced a renewal of the disease, which, after numerous vicissitudes, often attended with intense and varied suffering, at length carried him off, about eighteen months from its commencement. Before his death the liver appeared to be much enlarged, and was distinctly felt. Upon dissection, an aneurismal tumour was found about the size of a child's head, lying upon the three last dorsal vertebræ, and communicating with the aorta anteriorly by a small round hole, situated a little above the origin of the cœliac artery. An irregular opening was observed in its upper and left part through which blood had escaped into the thorax. The liver was healthy and of the natural size; but its convex surface was deeply indented by the ribs against which it had been pressed by the tumour so as to seem enlarged. The bodies of the three last dorsal vertebræ were deeply corded, and an opening was found leading into the spinal canal. An explanation was now afforded of the various and complicated symptoms which had marked the case. The violent intestinal pain undoubtedly originated in irritation of the solar plexus, in the neighbourhood of which the tumour was situated. The pain and spasms of the external muscles, which occurred in the latter stage of the complaint, were connected with the condition of the spine. Dr. Beatty observes, that by the employment of auscultation to the spine, they might probably have been led to a discovery of the nature of the complaint: but the situation of the tumour precluded the possibility of correct diagnosis by any of the ordinary means, as is evinced by the failure of the most skilful practitioners after a very close and minute examination.

Aneurism of the left Subclavian Artery, and of the right Carotid, successfully treated by ligature.

Having neglected the regular order of the reports in the account of the last case, we shall take the same liberty with another communication upon the subject of aneurism, in order that we may present in one view all that we can afford to extract from the volume in relation to this complaint. In the communication alluded to, the details are given of two cases of aneurism, one of the left subclavian artery, the other of the right carotid, successfully treated by means of ligature, by William H. Porter, one of the surgeons of the Meath Hospital.

In the first case, the patient was a man forty years old, who, when admitted into the hospital, had a firm pulsating tumour below the left clavicle, at the part corresponding to the division between the pectoralis major and deltoid muscles, about half as large as a hen's egg, becoming smaller when pressed, and almost disappearing when the artery was compressed above the clavicle. Before the operation, the tumour had increased to double its original size, and had already begun to displace the clavicle. It was determined to apply a ligature to the artery in the situation usually selected, namely, after it has passed the outer edge of the anterior scalenus muscle. The integuments having been divided, and the fibres of the scalenus exposed, the remainder of the operation was conducted with the handle of the knife and the finger. The operator was careful not to wound the external jugular, though by dividing and securing this vessel he would have gained much time. Having succeeded in laying bare the subclavian, he readily secured it by means of a single round ligature: and the pulsation in the tumour and in the radial artery, immediately ceased. No unpleasant constitutional symptom followed, and every thing went on favourably for about a month. At the end of this time, the tumour, which had diminished, began to increase in size and become painful, and notwithstanding the use of antiphlogistic measures, went on to suppuration. Having been opened by an incision, it discharged about a pint of fetid purulent matter, mixed with large clots of dark blood. Under the use of pressure it soon healed, and the patient recovered completely without a single alarming symptom.

The second case was that of a female, aged 40, affected with an enormous aneurism of the right carotid, measuring 7½ inches in length, and 6 in breadth, and extending to within one inch of the clavicle. There was reason to believe that the internal carotid was the seat of the disease. In the operation, the artery was tied at the distance of about three eighths of an inch from its origin from the arteria innominata. A single round ligature was applied as in the former case. In this instance, the local disease and constitutional disturbance which followed the operation were alarming. The temperature of the right side of the face and of the right hand were sensibly diminished; and the patient complained of numbness of these parts: but the circulation was soon restored; and at the same time pulsation in the tumour was very perceptible. This in a short time became inflamed and painful, and increased enormously in size; much general fever, with a very frequent pulse, nausea, vomiting, and great anxiety supervened, and the patient's life was in imminent danger. But by the use of venesection, leeching, cold applications to the tumour, with attention to the state of the bowels, the symptoms became milder, and in thirty days from the operation she was so well as to be allowed to walk about the ward of the hospital: but the tumour, though much diminished and no longer pulsating, was still as large as three fourths of the largest sized orange, and the patient was very much troubled with a short dry cough. In this state she remained with little alteration for about three months, when the tumour again began to inflame, febrile symptoms made their appearance; and she was once more in the greatest danger. The same remedies were not on this occasion successful in arresting the inflammation, which terminated in suppuration; and the tumour at length burst, discharging much purulent matter. The debility now became extreme: but the abscess, though very tedious in its progress, ultimately healed, and the constitution struggled through without permanent injury. In the progress of the cure a spicula of bone was discharged from the opening; but its source was not known. About seven months from the time of the operation the tumour had entirely disappeared, the ulceration had healed, and the patient was discharged from the hospital perfectly recovered.

Phlebitis—Painful swellings of the lower extremities—Phlegmasia Dolens. We return to the reports of Drs. Graves and Stokes. Two cases are recorded of painful swellings of the lower extremities accompanied with inflammation of the veins, occurring the one in a man during an attack of fever, the other in a female upon the commencement of convalescence from the same complaint. The limb in each case was much swollen and extremely painful; and the tenderness, every where great, was excessive along the course of the saphena vein, which in its whole extent could be felt like a hard cord. In the instance of the male, the attendant constitutional irritation assumed the intermittent form, and, as he concealed the local affection, was at first treated with sulphate of quinia, with an aggravation of the symptoms. The application of leeches with the use of calomel and opium effected a speedy cure. No increase of temperature in the limb was observed during the continuance of the inflammation. In the female the limb was hotter than natural, and tense, but not at all red. Leeching, opium and calomel, and the hip bath gave speedy relief: but the inflammation returned several times, affecting different parts of the limb, being on one occasion most severe in the calf, on another in the instep, and on a third at the middle of the thigh; and after its subsidence in this limb, it was transferred to the other, producing a similar train of symptoms, but without the tenderness and hardness of the saphena vein. When leeches were applied during the greatest swelling, a large quantity of serous fluid flowed from their bites, before any red blood made its appearance. In the latter period of the disease, the patient became so feeble as to require the use of stimulating and tonic remedies. She ultimately recovered.

"An accurate observation," say the authors, "of numerous cases both of phlegmasia dolens occurring after delivery, and of painful swellings of the extremities appearing during and after fever, has satisfied us of the pathological identity of the two diseases. In both, œdema occurs unattended by redness, but accompanied by increase of heat, with great tenderness and pain, and followed for a considerable time by impaired motion of the limb." In both diseases the swelling may extend over the whole extremity or may affect particular parts. In some cases the authors have observed the affection to be attended by a hard and painful state of the saphena vein: but this was generally subsequent to the disease in other parts of the limb; and in the majority of instances does not occur. They do not therefore consider the complaint as consisting primarily in inflammation of the large venous trunks. The subcutaneous cellular tissue appears to them to be the part first affected. The absence of redness is accounted for by the circumstance that the skin remains uninflamed. The degree of inflammation is intermediate between that which occasions serous effusion, and that which eventuates in the secretion of pus. The effused fluid approaches in its character to coagulable lymph, and hence the hardness and consolidation of parts which attend the complaint, when at its height.

Local depletion and the use of stupes, with the liberal employment of narcotics in the advanced stages, have been most effectual in subduing the disease in its acute form. Bandaging, tonics and diuretics should be added to the other means in the more obstinate cases; and when the knee is attacked, frequent leeching, blistering, and the use of the inclined plane are most effectual. The utility of salivation appears questionable to the authors.

After the above statements, another case is recorded which seems to have shaken in some measure their former opinion. The complaint occurred in a young man of strong habit of body. It began with pain in the thigh, which in the course of two days, became somewhat swollen, tender and elastic, but not at all red. At the same time, however, he was affected with pain in his left hypochondrium, and extensive bronchial and pneumonic inflammation supervened, with symptoms of typhous fever. The patient died, and upon dissection evidences were found of inflammation in the bronchial mucous membrane, the pleura, the substance of the lungs, the spleen, and in the external iliac vein just above Poupart's ligament, where a large concretion was found nearly plugging up the vessel, and extending into some of the minute collateral branches. The lining membrane was red, and in one part adhered to the coagulum. The femoral and popliteal veins were healthy. " It cannot be denied," say the authors, " that this case is strongly corroborative of the opinion before entertained and lately insisted on by Tommasini that the phlegmasia alba dolens is in reality owing to phlebitis." We cannot see the case in the same light. In such a complication of disease, it might readily happen that the cellular membrane of a part of the thigh should partake in the prevalent inflammation, independently of disease existing in the external iliac vein.

Pneumonia—Large doses of tartar emetic, &c. &c.—The authors are advocates for the use of large doses of tartar emetic in the treatment of simple pneumonia. This remedy is especially applicable in the early stages, and in cases occurring in individuals of strong constitutions, and unattended with gastric symptoms. They administer six grains in divided doses, during the first day, and increase the quantity by two or three grains daily, till the quantity amounts to fifteen grains in the twenty-four hours. They have seldom observed abdominal irritation to follow the exhibition of the remedy. "The first dose makes the patient vomit freely, but after a few more doses the medicine is borne well. But in the greatest number of cases a state of slight nausea, without vomiting, is kept up and continues for several days, and indeed as long as the remedy is administered." Sometimes purging is produced, but it soon subsides. Diaphoresis is rare, and cases have often occurred in which from ten to twelve grains were given daily, without vomiting, purging, or sweating. They are generally able to omit the remedy, or to begin to diminish it in four or five days; but seldom omit it suddenly, " as more than once a severe relapse has followed this practice." After the disease has past its first stage, the remedy loses much of its efficacy. The cases in which they have found it necessary to continue the treatment longest, are those in which the pneumonia has supervened on a chronic catarrh. "In one case of this kind in which the pneumonia was double, one hundred and eighty grains were administered, at the rate of twelve grains daily. In this case, the tolerance of the remedy was completely established after the second or third day." The authors, however, do not exclude general and local bleeding from their treatment; but on the contrary, regard them as of primary importance, while the tartar emetic is a very useful adjunct. When symptoms of gastric or intestinal disease exist, the use of the antimonial requires more caution. In one case which they record, the abdominal symptoms resulting from it were so violent as to render blood-letting necessary for their relief. In cases where from the commencement, symptoms of gastro-enteritis and pneumonia co-exist, they withhold the tartar emetic, as they have found that its exhibition under these circumstances is always improper. "In the few cases," they observe, "which have resisted the remedy, we have found *disease of the alimentary canal, particularly ulceration of the small intestines.*"

We have given an abstract of the practice of Drs. Graves and Stokes, without interposing our own views. We cannot, however, avoid the expression of an opinion that this treatment is hazardous. It is true that by far the greater number of patients recover: but, on this side of the Atlantic, we have been accustomed to see almost all, if not all our cases of simple pneumonia, in good constitutions and early treated, yield to vigorous general and local depletion, with the use of blisters, with very moderate doses of tartar emetic, or even without this latter remedy; and the employment of these gigantic doses cannot therefore be necessary. That they are occasionally injurious appears from the admission of the authors; and when we consider how violent a pustular eruption the solution of tartar emetic is capable of producing on the skin, we are strongly impressed with the belief that *some of the ulcerations of the small intestines discovered by dissection* in cases which had resisted the remedy, were, in fact, produced by it.

Our own experience agrees with that of the authors, as to the cases of pneumonia in which calomel and opium may be most advantageously administered. "In cases where a complication with abdominal disease decidedly exists, when the fever is low, and the powers of life greatly sunk, we have found the active administration of calomel and opium, so as to affect the gums decidedly, followed by the decoction of polygala and other stimulants, to have succeeded in the most remarkable manner."

In many cases of pneumonia, with great dyspnœa and lividity of countenance, the authors have known great improvement in the symptoms to follow the use of tartar emetic and bleeding, without any diminution of the stethoscopic signs of disease in the part of the lung chiefly concerned. They ascribe the phenomenon to the co-existence of general bronchitis and partial pneumonia, the former of which is relieved, while the latter continues, still involving the patient in danger.

They have met with one instance, in which the bronchial mucous membrane was proved by dissection to be entirely free from inflammation, in the midst of a mass of hepatized lung. This is contrary to the statement of Laënnec that in all cases of pneumonia, that portion of the membrane which exists in the affected part partakes of the inflammation.

We quote the following passage as practically important. "The *chloride of lime* has been administered by us in a case of pectoral disease, with great fetor of breath and expectoration, with remarkable benefit. The patient, in a fit of intoxication, lay naked on a stone floor for the whole of a night, and next morning had a severe pain in the side on which he lay, followed by other symptoms of an inflammatory affection of the lungs. After some time he was admitted into our wards in a state of extreme debility, with hectic fever, cough, fetid expectoration, fetor of the breath, and hippocratic countenance. A pill, containing three grains of the chloride of lime and one of opium, was administered three times a day, and in the course of three days the quantity was increased to twelve grains daily. A small quantity of wine was also allowed. The most rapid and marked amendment followed this treatment; in a few days the fetor of breath and expectoration had disappeared. No inconvenience whatever was experienced from the remedy. We also directed the covering of the bed to be sprinkled with a solution of the salt. The remedy was then omitted. In two days the fetor returned, and fever began to appear; but these symptoms again subsided with rapidity on our resuming the employment of the remedy."

In relation to percussion the authors state that they have confirmed an observation already made by others, that the patient experienced much more pain from it on one side than on the other, and the tenderness was frequently so great in certain portions of the chest, as to render the use of percussion, as a means of diagnosis, quite impossible. The cases in which this tenderness was observed were those of acute pleuritis, and pulmonary consumption, especially the latter.

Difficulty of swallowing from a Tumour in the posterior mediastinum.—A female patient was admitted into the Hospital afflicted with frequent cough, considerable dyspnœa, and great difficulty of swallowing, which she believed to be owing to a lump in her throat, referred by her to the lowest portion of her neck anteriorly. The countenance was livid and expressive of distress, and the pulse was small and accelerated. She died very soon after admission; and on examination, a large encephaloid tumour was discovered immediately below the left clavicle, displacing the lungs, in contact with the trachea, and pressing upon the œsophagus. In fact, the trachea and œsophagus were enveloped by the mass from the lower portion of the neck downwards. The tumour appeared to have originated in the posterior mediastinum which it filled, and extended into the upper portion of the left thoracic cavity. The inference drawn from stethoscopic examination had been, that the superior portion of the left lung was in a state of solidity, probably from the presence of tubercles.

Laryngitis.—As inflammation of the larynx is often attended with a material alteration in the sound produced by breathing, it not unfrequently places great difficulty in the way of deciding upon the exact state of the lungs. The authors think that this circumstance has not been sufficiently dwelt on. "In point of fact," they say, "whenever the disease in the larynx is sufficient to cause sibilous breathing, all the stethoscopic phenomena depending on the characters of the respiration are singularly modified. Thus, when the obstruction is so great as to cause the respiration to be long and painful, the expansion of the air cells is often quite inaudible." In one instance, in which the obstruction to respiration was so great, as to require tracheotomy, the respiratory murmur, before the operation, was so exceedingly feeble, as closely to resemble the impression produced upon the ear in emphysema of the lungs: but when "a free opening had been made in the trachea, the respiratory murmur became at once puerile, and did not subside to the natural intensity for some hours." A knowledge of this fact is of practical importance, as tubercles of the lungs often accompany chronic laryngitis, and the treatment demanded in this case differs materially from that which is proper in simple disease of the larynx. Thus mercury is one of the most efficacious remedies in laryngitis; but is inapplicable to the complicated cases.

In simple chronic laryngitis, in persons of good constitution, the chief and most obvious symptom is hoarseness increased by exertion of the voice. The disease should not be neglected, as there is always danger of its passing into a worse form. The treatment recommended by the authors consists in enjoining *silence*, in the frequent application of a few leeches to the region of the larynx, and in the exhibition of mercury so as to affect the gums slightly. Tartar emetic ointment they prefer as a counter-irritant to blisters. To prevent a recurrence of the disease, they advise the habitual washing of the throat night and morning.

In this complaint the fauces and pharynx should always be examined. The authors have often found numerous small superficial excoriations bounded by red lines, and of a greyish colour, occupying the upper portion of the pharynx, and believe that the same disease extends to the laryngeal membrane to which it has been propagated from above. This state of things is observed even when no soreness of the fauces is complained of. The repeated application of a strong solution of nitrate of silver—10 grains to the ounce—by means of a camel's-hair pencil to the parts within reach, proves very serviceable: and after a slight alterative course of mercury, the use of sarsaparilla, and the general tonic plan of treatment are recommended.

In persons who have used large quantities of mercury for the cure of syphilis, this disease is much more obstinate, and is very apt to terminate in ulceration of the cartilages. "A nutritive diet, a seton in the neighbourhood of the affected part, the decoction of sarsaparilla, with the cautious use of corrosive sublimate or arsenic, the application of nitrate of silver to the pharynx and rima glottidis, by means of lint moistened in the solution already mentioned, and mercurial inhalations have in some cases succeeded in removing the disease. Though the inflammation may have subsisted for a considerable time, the occasional application of leeches should not be neglected."

" When a decided phthisical tendency accompanies chronic laryngitis, the case is generally hopeless."

In addition to the remedies above enumerated, the application of belladonna plaster, or of a cerate made with scotch snuff as recommended by the late Dr. Godman, has been found useful by the authors during the spasmodic exacerbations. In a violent case which fell under our own observation, we found tobacco leaves steeped in hot water and applied round the throat a most efficient remedy. Pediluvium, and the exhibition of an antispasmodic draught, consisting of the ammoniated tincture of valerian, ether, and opium, are stated to have produced speedy relief in many cases of spasm, producing terrible difficulty of breathing. In some instances in which the attacks were so violent as apparently to call for instant operation, the breathing was relieved by this draught immediately after it was taken.

Diseases of the Liver. Under this head several cases of abscess of the liver are reported, in relation to which we shall select the most interesting facts and observations without entering into details.

Distended gall bladder in some instances so closely resembles hepatic abscess, as to have been mistaken for it by the most skilful surgeons, who have been surprised at finding bile instead of pus follow an incision. This mistake the authors believe has been fatal in every case except in one which occurred to themselves. A circumscribed tumour, evidently containing fluid, made its appearance in a case of chronic hepatitis, to the right of the median line of the epigastrium, in the vicinity of an incision which had been previously made over a tumefied portion of the hypochondrium. From the wound, a lancet was pushed into the tumour, and on its withdrawal was followed by nothing but dark coloured bile. The circumscribed tumour disappeared; but the fulness of the side remained. No peritoneal inflammation followed: and the patient was afterwards greatly relieved for a time by the discharge of the true abscess into the intestines. The disease, however, resulted fatally; and on dissection a spot was discovered in the gall bladder corresponding exactly to the size and form of a lancet puncture. It was covered by a thin transparent membrane. The authors observe, that the escape of bile into the peritoneal cavity was probably prevented by the existence of adhesions at the point where the puncture was made.

In a case of hepatic abscess, very carefully opened by a small valvular incision, made through an ulcer resulting from a caustic issue previously applied over the abscess, violent peritonitis supervened, evidently owing to the escape of pus into the cavity of the peritoneum. The patient had been previously much exhausted by the disease of the liver. Instead of bleeding and the application of leeches, a blister was placed on the inside of the arm, and the vesicated surface sprinkled with morphia; half a grain of opium was given every second hour; and the patient was allowed porter. Under this plan of treatment the peritonitic symptoms entirely subsided in a few days. The patient ultimately died of the disease of the liver; and the previous existence of peritonitis which the symptoms had already manifested, was now demonstrated by the existence of organized adhesions between the convolutions of the intestines, and others connecting the intestines with the parietal peritoneum. No signs of recent inflammation of this membrane were observed. On the subject of this plan of treatment, we shall quote more largely under another head.

In another case of hepatic disease which resulted fatally, the gall bladder was found to contain "a perfectly transparent viscid fluid, which did not coagulate on the addition of nitric acid, or the application of heat. After the addition of corrosive sublimate, it became slightly opalescent on standing." A yellowish viscid mucus was found in the intestines.

With regard to the best mode of operating when it is deemed advisable to open an hepatic abscess, the opinion of the authors appears to be unfavourable to the method by caustic. "It is so tedious, that before it effects our object the abscess will probably have enlarged to a fatal extent; nor does it, as was supposed, insure the formation of adhesions. From our own experience," they observe, "we are disposed to consider adhesions between the parietal and hepatic peritoneum, in cases of abscess in the convexity of the liver, as of rare occurrence, a circumstance which presents a remarkable contrast with their frequency in the thoracic cavity."

In no case where hepatic abscess formed were they "able to affect the system with mercury, although exhibited in full doses; an observation coinciding with staff surgeon Marshall's experience of suppuration of the liver, as it occurs in the East Indies."

Peritonitis from Perforation of the Intestines and escape of their contents into the peritoneal cavity.—Instances of this affection abound in the records of pathological anatomy, and must have occurred to most practitioners of extensive experience. We do not, therefore, propose to introduce into this abstract, the cases which have been detailed in the work before us, especially as they do not present in their origin or progress, any points of striking novelty or importance. Our object in noticing the subject, is to call the attention of the reader to a mode of treatment which is recommended by Drs. Graves and Stokes, and which appears to have been attended with encouraging success. We cannot do better than quote their own language.

"We are of opinion, that the principle of treatment in these desperate cases is not yet fully understood. Are they to be treated like cases of idiopathic peritonitis? This is a question of the highest practical importance. We shall examine it briefly. It appears to us that the antiphlogistic plan is not so applicable as in the simple form of this disease. In the first place, the perforation generally occurs at an advanced period of some other disease, when the constitution is less capable of supporting any loss of blood. In the second place, the disease, as we stated before, runs its course with such rapidity, that in a comparatively short space of time, it brings the patient into the last stage. Now it is at this time that the physician is most frequently called on to interfere, and as far as our observation has gone, the antiphlogistic plan only accelerates the fatal termination. We know that nature makes an attempt to cure, and the question is, how are we to prolong life, so that organization of the false membrane may take place? Is it by drawing blood after the peritonitis has come nearly to its last stage, when the powers of the nervous system are in the greatest state of depression? We apprehend not. Bleeding, in peritonitis, is useful in preventing the increase or extension of the disease: but in these cases the affection is *at once* extensive and severe. These considerations make us submit that general, or even perhaps local bleeding, is a mistaken practice in this disease, and we are borne out by experience of cases somewhat similar, in recommending a different plan. In the first place, the antiphlogistic plan has failed in all our cases; this alone is an argument against it. Secondly, we know that certain cases of peritonitis, when the powers of life are greatly sunk, may recover under the exhibition of wine and opium, when bloodletting would be destruction. Thirdly, the exhibition of opium in large doses, has succeeded in our hands in checking peritonitis, when the powers of the system were so much depressed, as to make us avoid the antiphlogistic plan."

The authors then adduce in favour of the practice of giving wine and opium in peritonitis, arising from the causes alluded to, its success in the case of hepatic abscess before mentioned, when a portion of the contents of the abscess escaped into the peritoneal cavity—and the favourable effects which resulted from it in the following case.

A boy aged twelve, was attacked with enteritis for which he received no suitaqle attention for a week. At the expiration of this period, his symptoms presented all the characters of peritoneal inflammation, with great prostration of strength. Calomel and opium were exhibited, leeches and the warm bath applied, and on the following day, blood was taken from the arm. Under these circumstances he was admitted into the hospital. The countenance was collapsed, the extremities cold, the pulse barely perceptible, the respiration hurried, the abdomen swelled and exquisitely painful, and there was constant tenesmus. Large doses of the black drop were given every second hour, and mercurial frictions used over the belly. On the next day he was greatly improved, and in two days more "all symptoms of peritonitis had completely subsided. The belly felt natural; there was no tenderness; the pulse was good; and the patient declared himself well." The plan of treatment was "unfortunately" changed, and a gentle saline laxative was administered in place of the opium. This produced four evacuations, followed by a return of all the symptoms of abdominal inflammation, under which he speedily sunk. Dissection exhibited the intestines agglutinated together, and adherent to the parietal peritoneum; and a portion of puriform matter was observed in different parts of the cavity. "On detaching the caput coli from the peritoneum lining the right iliac fossa, a small perforation of the gut was discovered by the escape of the contents of the intestines in a jet."

The authors also adduce in support of their practice, two cases of peritoneal inflammation which succeeded tapping in exhausted subjects, and in which, though apparently desperate, the disease was subdued by opium without the use of either the lancet or leeches. They inform us that "it is now nine years since this practice was introduced into the Meath Hospital." They conclude the subject in the following words. "We would then recommend the use of opium *in large doses* in cases of peritonitis from perforation. If the lancet is to be used, it should be only at the very outset of the disease, and even then its utility appears to us very problematical."

Carbonate of Ammonia secreted with the Urine.—The first part of the work concludes with a brief notice of the character of the urine, in a case of malignant petechial fever, as it was secreted on the twelfth day of the disease. It was high coloured, and effervesced strongly on the addition of an acid, owing as was proved to the presence of carbonate of ammonia. As little or no urea could be detected in the urine, it was inferred that the constituents of this principle were evolved in the state of carbonate of ammonia. The urine was examined immediately after it had been passed. We are not informed whether the patient had been taking carbonate of ammonia. After the crisis by sweating, which took place on the fourteenth day, the urea reappeared in the natural quantity, while the urine was acid, and deposited the lithates upon standing.

Stricture of the Rectum.—The second part of the work commences with a paper by Dr. Abraham Colles on diseases of the anus and rectum. The part of the communication which most strongly attracted our attention, was, that in which this experienced practitioner gives the result of his own observation as to the treatment of organic stricture of the rectum. He is confident that a perfect cure of the disease has not been effected by any plan of treatment hitherto employed. He considers the bougie well calculated to alleviate the sufferings of the patient, and has paid great attention to the use of this instrument; "and yet," he observes, "I must candidly declare, that hitherto

I have not been so fortunate as to have effected a permanent cure in a single instance; nor have I had the good fortune to meet with any patient whom I *knew* to have been afflicted with this disease, who had been cured by another surgeon." Local applications of different kinds, and various internal remedies which he has employed, have proved wholly ineffectual. Mercury he has pushed very far without any permanent benefit in a single instance. Arsenic, iron, and cicuta, have been found equally inefficient. "Large quantities of mucilage appear to give most relief. Blue pill, combined with a double quantity of Dover's powder, has also occasionally afforded much temporary alleviation."

Dr. Colles is unwilling to admit the existence of what has been called spasmodic stricture of the rectum. He states, that in the course of a pretty extensive practice for the last twenty years, he has not been able to discover a single case of disease corresponding with the description of the spasmodic stricture of authors. He recollects many cases in which this suspected condition of the rectum has yielded to the ordinary means for improving the state of the stomach and bowels, especially when combined with positive assurance to the patient that no such disease has existed. One of these cases he relates. A gentleman consulted him with a supposed stricture of the rectum, of two years standing. Respectable physicians had assured him of the existence of the disease. The diameter of the feces was diminished; the calls to stool more frequent; the discharges were generally mixed with blood and purulent mucus; he was losing flesh rapidly; his appetite and rest were indifferent, and his mind was miserable. Dr. Colles examined the rectum and convinced himself that there was no stricture. But he could not impart the same conviction to his patient, nor prevail on him to abstain from the use of the bougie, till the irritation of the bowels had been so far mitigated, by the use of blue pill and Dover's powder, with enemata of olive oil and lead water, as to allow the passage of a consistent stool of the natural diameter. After this he ceased to use the instrument: and mild bitters with bark, and the daily use of an injection of olive oil and ointment of nitrate of mercury, effected a cure of the complaint.

The Doctor has known two cases of fatal peritonitis induced by the use of a bougie to dilate a supposed stricture at the upper part of the rectum or termination of the colon.

Vascular tumours of the Rectum.—Dr. Colles decidedly prefers the use of the knife to that of the ligature, for removing these tumours. The only danger from the former is hemorrhage, which can be arrested; while tetanus which may arise from the latter, cannot by any means be foreseen or guarded against. We shall transfer to our pages his description of the mode of operation employed by himself, which he considers less severe than that generally recommended.

> "The tumours having been made to protrude by means of a purgative injection, I direct my assistant to pass a hook or common tenaculum through one or two of the largest, while I seize another lengthwise with a polypus forceps, then drawing the tumour a little towards the axis of the gut, with a large pair of scissars passed behind the forceps, I cut off all that portion which is engaged between the blades; I then proceed in the same manner to remove those tumours which the assistant holds transfixed with a hook. I do not think that any case will require the removal of more than three of these tumours, and not unfrequently the cure will be ensured by cutting off only two of them. When the operation is finished, the protruded parts generally retire within the sphincter: should any part remain out, it must be completely pushed in with the finger. In order to guard against the danger of hemorrhage, I take care not to prolong my incision higher on the bowel than what I conceive will, when replaced, lie within the circle of the sphincter; for if we cut the gut higher up, this part, when returned, may bleed freely from not having any surface closely opposed to it."

The complaint, however, may in most cases be rendered very mild, if not ultimately cured, without resorting to an operation. By causing the patient to inject four or five ounces of a solution of sulphate of zinc, containing two grains to the ounce, every night at bed time, and directing him to retain it during the night, Dr. C. has "known the disease so much alleviated, that patients had flattered themselves they had obtained a perfect cure."

Ulcer of the Rectum.—In the rectum, a short distance above the anus, an ulcer sometimes exists unconnected with any other disease. It is attended with an unhealthy purulent discharge, often mixed with a thin bloody fluid, and occasions much pain on going to stool, which continues for an hour or two. On examination, the finger detects a raised and rather rough surface, which, when firmly pressed, "sinks into a small hollow cup of an ulcer, the edges of which are found in some degree hardened. The remedy for this disease is to introduce into the rectum a convex-edged scalpel, and make an incision through the entire length of the ulcer, continuing it through the sphincter, and dividing the verge of the anus. As soon as the wound gets into a state of suppuration, we should dress it and the ulcer with some stimulating ointment, introduced on a dossil of lint. The cure goes on without interruption, although it is rather tedious and slow of healing."

We are compelled to pass over some anatomical observations on the mucous membrane of the rectum by Dr. Houston, and a paper on the *placental soufflet* by Dr. Kennedy.

Onychia.—In a communication by M. Rynd on the subject of onychia, the particulars of a case are given to which we wish to call the attention of our readers. A medical gentleman was affected with inflammation of his thumb consequent upon the puncture of a pin. In three weeks a fungus appeared at the end of the thumb, under the anterior edge of the nail, and extended considerably, till nearly one half of the matrix of the nail was involved. The existence of an abscess was suspected, and an incision made into the thumb; but no matter was discovered. The operation was afterwards repeated with the same want of success. The suffering of the patient was extreme, and his health gave way under the constant sleeplessness and pain. In this condition he remained for two months, when pressure was advised with the view of promoting the absorption of the fungus. This was applied by means of compresses of sheet lead firmly bound upon the part. In the following night relief was suddenly obtained by the bursting of an abscess; and the ulcer ultimately healed.

Another similar case soon afterwards occurred, in which, taught by the experience of the first, the practitioner immediately after the appearance of the fungus, made a deep incision through it, with instant relief to the patient, and speedy disappearance of the fungous growth.

As fungus about the nail often arises from other causes, it is important to bear in mind its occasional dependence upon abscess, so that time may not be lost in treatment calculated for a different indication.

But the chief interest of the case of which we have above given a sketch, is not connected exclusively with the affection of the thumb. About three weeks before the puncture of the pin, the patient had received, while dissecting the body of an individual who had died of diseased hip-joint, a wound in the thumb, which, however, had healed speedily and well; so that the subsequent constitutional symptoms are rather ascribable to the local disease before described. About three weeks after the appearance of the fungus the lymphatics of the forearm became inflamed; and the inflammation extended along their course to the axilla. This was relieved by leeches; and in a month afterwards an enlarged gland appeared in the axilla, which gave way to the same treatment. Not long subsequently a slight inflammation occurred in the throat, which was followed by an eruption of scarlet patches on the forehead, arms, and thighs. A peculiar eruption also appeared on the scrotum, and tumefaction arising from periostitis appeared upon the tibia. The health was seriously affected, and the suffering from the throat often very great. The fauces exhibited an erythematous redness, and sometimes an appearance of abrasion; but no deep ulceration. The patient now determined to try the effects of mercury, and took two grains of calomel daily for four days, which affected his gums, and rendered his breath offensive. It was then omitted, and never afterwards resumed. All the symptoms gradually declined; and when the case was reported, he was affected only with weakness, wandering pains in his hip joint, and some slight remains of eruption on the forehead and hand. It is stated that by no accident or possibility could he have contracted any syphilitic taint.

With regard to *onychia maligna*, the writer considers the most simple and satisfactory method of cure to be the complete extirpation by means of the knife, of the diseased matrix of the nail. The operation "consists in making a deep incision down to the bone, from three to four lines behind the posterior margin of the sore, which incision is carried round it, and then the entire surface is dissected out." We have repeatedly met with these cases in our practice; but have never found it necessary to have recourse to the knife. The use of a powder composed of equal parts of sulphate of zinc, and corrosive chloride of mercury, sprinkled thickly upon the diseased surface, and then covered with a pledget of lint steeped in laudanum, a practice first introduced by Dr. Perkins of Philadelphia, and afterwards recommended by Dr. Physic, has always proved effectual, in our hands, in completely destroying the diseased surface, and converting the malignant ulcer into a healthy sore. Dupuytren is usually considered the author of the operation by the knife above alluded to: but according to Mr. Rynd, "it was performed in many of the hospitals in Dublin, years before the paper appeared in which the name of that distinguished surgeon is mentioned."

In the disease usually designated by the name of *inverted toe nail*, Mr. Rynd recommends the same operation as that for onychia maligna. The mere removal of a portion of the nail even from the root is not effectual, as the secreting membrane remains, and the offending matter is soon reproduced.

We are convinced, however, that neither of these painful operations is necessary. In the cases which have come under our own observation, we have usually been able to effect a cure by the plan of pressure, combined with rest, as recommended by Dr. Meigs, of this city, in a paper published in the second volume of the Philadelphia Journal of the Medical and Physical Sciences.

Ruptured Intestine.—Mr. Hart, in a communication upon the subject of contusions of the abdomen, after relating a case of ruptured intestine arising from external violence, endeavours to explain the fact, that this accident usually happens to the jejunum, by adducing the circumstance, that this portion of the bowels is at its commencement closely attached to the spine, and for some inches lower down is confined to the vicinity of that part by the shortness of its mesentery, thus affording a fixed point for the external force to act upon.

Such cases are usually considered as utterly hopeless; but Mr. Hart recommends a mode of practice which is certainly deserving a trial. His plan is to suspend the peristaltic action of the bowels by large doses of opium, and thus prevent, as far as possible, the escape of their contents through the rupture; while the inflammation of the peritoneum is to be moderated by bleeding, general and local, and counter irritation. Our readers may recollect that the opiate practice is employed by Drs. Graves and Stokes, in the somewhat analogous affection of perforation of the intestines; and we are pleased to be able to adduce in this place an instance of its success, the particulars of which were communicated to Mr. Hart by these gentlemen, and published by him in confirmation of the propriety of the mode of practice which had previously occurred to him as suitable in the case under consideration.

A middle aged man was admitted into the Meath Hospital apparently in the last stage of peritonitis, which had come on suddenly after an attack of hypercatharsis, and was believed to have resulted from perforation of the intestine. The belly was swollen and so exquisitely tender that the slightest pressure made the patient scream. The countenance was hippocratic, the extremities cold, and the pulse weak and slow. The patient was tormented with constant hiccup. Leeches were applied to the belly without any apparent advantage. Opium was then directed in the dose of one grain every hour. The following day the symptoms were improved. "The patient had not experienced the slightest coma, headache, or delirium. The same plan of treatment was persevered in for ten or eleven days, the quantity of opium being gradually diminished. The patient recovered, after taking altogether one hundred and five grains of opium, without having experienced any of those effects which usually result from large doses of this narcotic."

Case of attempt at Suicide, with danger of suffocation by the falling down of the epiglottis.—Under this head, Dr. Houston communicates the particulars of a case of suicide, in which the throat was cut with a razor so as to sever the epiglottis from its attachments to the tongue and os hyoides, and leave it hanging by its pedicle to the back of the pomum adami. The carotids had escaped untouched, and the bleeding was inconsiderable; yet when first seen, about ten minutes after the accident, the patient scarcely appeared alive. The pulsations of the heart were imperceptible, no pulse could be felt at the wrist, the limbs were cold, and all feeling and consciousness lost. The symptoms were those of suffocation, and were found upon examination to be owing to the falling of the epiglottis over the rima glottidis, by which the passage of air into the lungs was prevented. When the obstruction was removed by raising and securing the epiglottis, respiration returned, and the patient survived for a week.

Internal Strangulation of the bowels after parturition.—Among the pathological observations contributed by Dr. Houston, we find the following case. A lady who had given birth to several children without any untoward symptoms, was delivered of a healthy boy, her last child. She had suffered no inconvenience during pregnancy; but immediately after the birth of the infant was seized with severe pain in the bowels, and died in about thirty-four hours, with all the symptoms of the most acute peritonitis. On examination after death, the whole peritoneal surface was found inflamed, and the ileum to the extent of three feet was completely sphacelated, black, and filled with blood. "A band of lymph two inches long, and of considerable thickness and solidity, was attached by one end to the right ovarium and fallopian tube, and by the other formed a tight noose round the mesentery of the mortified intestine." It would appear that the ovarium during pregnancy had contracted adhesion to the mesentery, while the uterus was high in the abdomen, "and that the descent of that organ after parturition, drew tight the band which strangulated the bowels."

Obstinate and extensive Psoriasis cured by rest and depletion. The case of which we give the following abstract, was communicated by Dr. William West. A robust young man was attacked with psoriasis which in a short time extended over his whole body, with the exception of the face and hands. Various internal medicines, and local applications, were employed without effect. At length the antiphlogistic treatment recommended by Dr. Duffin, was resorted to; and after the inflammatory action had been reduced by venesection, aperients, and low diet, the patient was put upon the use of the arsenical solution. But, though these remedies were applied for many weeks, no permanent benefit was experienced, as the disease, although occasionally mitigated, assumed its former violence, as soon as the patient took exercise, or in the slightest degree departed from the vegetable diet. All treatment was now abandoned for some time, in order to allow the patient to recover from the effects of the preceding treatment. When a due degree of vigour had been restored, the antiphlogistic plan was again commenced, but in a modified manner. The patient was confined strictly to his bed, was placed upon a cooling and scanty vegetable diet, was bled several times, and had his bowels kept open by a combination of cream of tartar and electuary of scammony. Under this plan he rapidly improved, and in less than five weeks was almost completely freed from a disease that had lasted more than six months, and had resisted many active remedies. The advantages of confinement to bed, which was suggested by Dr. Graves in consultation in this case, were thought to be, that a strict antiphlogistic regimen is thus more readily enforced, and less injurious to the constitution, and that the skin is guarded from all sources of external irritation, while it is kept in a perspirable state, very favourable to a cure. The patient had no relapse, nor was any discolouration of the skin left, even where it had been most severely affected.

The extent to which this analysis has already reached admonishes us that we must be more rapid in our survey of what remains, and we shall be compelled to omit much that we should be pleased to be able to introduce.

Stains of the Conjunctiva and opacities of the Cornea produced by nitrate of silver, acetate of lead, &c.—Among several important contributions to ophthalmic surgery by Dr. Jacob, Professor of Anatomy in the Royal College of Surgery in Ireland, we were particularly struck with some remarks upon the subject which we have placed at the head of this section. The professor has for many years noticed in his lectures the stain produced in the conjunctiva by the local use of nitrate of silver; and the same effect has been observed by Mr. Lawrence. Dr. J. thinks the stain indelible even when existing in the slightest degree. He has not observed the application of a strong solution for a fortnight or three weeks to produce the effect; but believes that "its continuance for six weeks or two months will do so. The colour, in cases where the solution has been used for a short time, is a light olive, sufficiently deep, however, to produce very obvious deformity. If a strong solution has been used for a great length of time, the stain is much deeper, colouring not only the conjunctiva of the eye, but also that of the under lid, upon which, from the vascularity beneath, the colour appears still deeper."

But the effects of the nitrate, applied either in substance or solution to ulcers of the cornea, are still more to be dreaded.

"It either adheres to or becomes entangled in the flocculent surface, and if this surface be not a slough and completely cast off, the nitrate of silver, rendered black or brown by exposure, becomes permanently fixed as the ulcer heals, and constitutes an indelible dark speck. I do not, however, mean to say," continues the professor, "that these effects necessarily follow in every case, but I believe the black opacity of the cornea is produced most frequently by the use of the remedy in the very cases in which the application is particularly recommended, that is, in sloughy ulcers, or ulcers which have just cast off a slough." Dr. Jacob does not consider the use of the lunar caustic necessary in these cases; but to those inclined to use the remedy, offers the following recommendation.

"The surgeon, in place of using a pencil of caustic, as recommended by Scarpa, should scrape a little into fine powder, and then taking up a little on the moistened point of a fine camel hair pencil, apply it with a steady hand to the ulcer, waiting his opportunity till the eye becomes fixed, and repeating the application until the surface of the ulcer becomes completely white and decomposed: he must, at the same time, take the greatest care to prevent the lid from falling, or the eye from turning up beneath it, until he has washed the surface with a plentiful discharge of water from a finely pointed syringe."

The injury produced by acetate of lead is even greater, as a general rule, than that which follows the use of the nitrate of silver. "If a solution of acetate of lead be applied to the eye when the cornea is suffering from an ulcer of a particular character, the acetate is decomposed, and a white precipitate is deposited on the ulcer, to which it adheres tenaciously, and in the healing becomes permanently and indelibly embedded in the structure of the cornea. The appearance produced by this cause cannot be mistaken. Its chalky, impervious opacity, distinguishes it from the pearly semi-transparent structure of even the densest opacity produced by common ulceration. It is produced at once, and by a single application of the solution." Dr. J. cannot state positively the precise condition of the ulcer which causes this deposit, but it does not take place in all cases where the acetate of lead is used. It occurs, however, most frequently where sloughing and ulceration attend purulent or pustular ophthalmia, and when the ulcer presents a dirty white, unhealthy appearance.

When a solution of nitrate of silver or acetate of lead is dropped into the eye, it immediately becomes turbid, in consequence of the chemical action of the tears; and a white precipitate is deposited. It is this insoluble precipitate uniting with the animal matter that produces the discolouration.

Dr. Jacob is unable to determine how far the stains and opacities admit of remedy, and is not prepared to recommend any measures for their removal.

Cancer of the Uterus.—In a paper upon this subject, Dr. Montgommery, "Professor of Midwifery to the King and Queen's College of Physicians in Ireland," presents a gloomy catalogue of cases, all of which terminated fatally; nor has he any thing cheering to offer in relation to the treatment. With regard to the use of iodine, which is supposed by some to possess great powers over this complaint, Dr. Montgommery observes that in his hands it has completely disappointed expectation in every case except one, in which it appeared to produce extraordinary benefit in the condition of the patient. In this instance, however, he was compelled to omit it from its effects upon the system, and in a short time the disease resumed all its former violence. Nor does he expect more from the operation of excision. He states his conviction that so far as his experience has enabled him to judge, it is almost universally impracticable, and utterly useless when the disease really exists and is developed. The disease, he observes, occurring usually at a time of life when disturbance in the uterine functions and consequent uneasiness are regarded as matters of course, does not attract notice, in most instances, till completely formed, and attended with consolidation of the neighbouring parts. Indeed, according to the author, the pelvic glands in the great majority of cases are contaminated almost from the beginning. "It is moreover quite ascertained, that the disease, instead of first showing itself in the cervix or os uteri, frequently commences in some of the appendages of the uterus involving the surrounding tissues, or in the upper part of the organ, and thence spreading downwards, manifests itself last in the cervix." As a matter of observation on the subject, the author states that in not one of the cases of the disease which he has met with, would any modification of the operation have been admissible or justifiable.

A communication from Dr. Houston, relative to two newly discovered muscles, and another by Dr. Apjohn on expired air, we should be pleased to be able to notice in this place, but are precluded by our limits. We shall probably find room for an abstract of their contents in the quarterly summary.

Tracheotomy.—Immediately succeeding the last mentioned paper, is a case of laryngitis recorded by Mr. Porter, in which tracheotomy was performed by this gentleman, with the effect of rescuing the patient from immediate death, and restoring him to tolerable health, although the artificial opening is still, and will probably continue to be necessary for respiration. Thus far, however, there is nothing peculiar in the case, as others equally favourable have been recorded. But in this instance the disease of the larynx had proceeded so far that one of the arytenoid cartilages had been separated by ulceration and was discharged through the wound; and a communication had been established between the larynx and pharynx, as evinced by the passage of fluids through the artificial opening when the patient attempted to swallow; and the peculiarity is that comparative health should have been restored under these circumstances. The communication between the larynx and pharynx was ultimately closed by the efforts of nature; not even the stomach tube was introduced to confine the liquids swallowed to the proper course.

Effects of posture on the Pulse.—The next communication is a paper by Dr. Graves upon the effects produced by posture on the frequency and character of the pulse. It is well known that the pulse is usually more frequent in a standing than recumbent position, as well in health as in disease. Dr. Graves has paid particular attention to this subject, and presents us in this communication with the result of his observations.

In a healthy person, he informs us, the pulse in the erect posture is more frequent than in the horizontal, by from six to fifteen beats in the minute; the difference being proportionate to the frequency of the pulse at the time of the experiment. In debility, and in most forms of disease, the difference is greater, amounting in fevers, and in the debilitated state of system produced by fever or other causes, to thirty, forty, or even fifty beats. The pulse is most frequent immediately after the erect position has been assumed, and generally subsides to a certain extent after a short time, but still continues steadily more frequent than in the recumbent posture. When the individual lies down it rapidly falls to the former standard. "In some the increase in frequency is greater between the horizontal and sitting posture, than between the latter and the erect; while in others the contrary takes place, so that generally the frequency in the sitting posture may be taken as a mean." The pulse is also stronger in the horizontal than the erect posture; so that its *maximum of strength and minimum of frequency* are attained together. *Hypertrophy with dilatation of the heart* is the only disease in which Dr. Graves did not find this difference; and the peculiarity is explained by the increased strength and energy which the left ventricle possesses in this complaint.

The cause of the difference does not appear to have been satisfactorily ascertained. We have always ascribed it to the muscular effort requisite in standing; but Dr. Graves states that he found it to exist even when the individual was retained in an upright position without muscular exertion on his part. Having satisfied himself of this fact, he concluded that the difference might depend upon the difference of pressure exerted on the brain; and inferred that by placing the head lower than the feet, he should produce a still greater retardation of the pulse; but the result of experiment did not accord with his preconceived opinion. No change in frequency was produced by this position; but the strength of the pulse was diminished, in some instances considerably; and irregularity in the beat was not an unusual effect. This Dr. Graves ascribes to the pressure of the blood upon the aortic valves.

It may sometimes be useful in practice to ascertain the comparative frequency of the pulse in the horizontal and erect position, as a measure of the debility of the patient.

Two interesting cases of the extraction of foreign bodies from the trachea are related by Mr. M'Namara, but as their interest depends rather on the skill in diagnosis which was displayed by the operator, than upon any new principles which they are calculated to illustrate, we must deny ourselves the pleasure of transferring them to our pages.

The work concludes with a communication on the subject of a peculiar convulsive disease of infants, by Dr. Marsh, professor of the principles and practice of medicine in the Royal College of Surgeons. With a brief account of the contents of this paper we shall close our review, already perhaps too much extended.

Peculiar convulsive disease of Infants.—The complaint to which we refer under this title, was described by Dr. John Clarke in his commentaries on the diseases of children, and by Dr. Cheyne in his treatise on Hydrocephalus; and has been noticed by some other writers in a desultory manner; but as it is not generally well known, nor the principles upon which it should be treated well settled, Dr. Marsh presents the results of his own experience in relation to it, in the hope of supplying the deficiency.

Though mild and in general easily curable in its earlier stages and simpler forms, it is liable, if neglected or mismanaged, to become a very dangerous affection. It consists primarily in a spasm of the glottis; but as it increases in severity, other muscles, particularly those which move the fingers and toes, become engaged; and it ultimately, if not arrested, assumes the form of severe and universal convulsions. The infant is suddenly attacked with difficulty of breathing, is thrown into great alarm and agitation, makes convulsive efforts to respire, during which the face becomes swollen and purplish, and at length recovers from the paroxysm with a long and sonorous inspiration. The attacks frequently return, and are excited by any cause which tends to disturb the system. Sometimes the disease consists solely in a repetition of these paroxysms of spasm of the glottis, without a perceptible derangement of function in any other part, or any apparent irritation from dentition. It appears to depend on irregular nervous action; and generally subsides under mild tonic treatment, a well regulated diet, and exposure to fresh air. In one case Dr. Marsh prescribed half a grain of sulphate of quinia for a child eleven months old; and he has sometimes found occasion to resort to anti-spasmodics, among which none has appeared to him more beneficial than that old fashioned medicine, the "Tinctura Fuliginis." But the complaint is frequently complicated with painful dentition, and with derangement of the digestive functions. Under these circumstances, the spasmodic action extends to the muscles of the extremities, and frequently becomes general; fever sometimes sets in; the brain often takes on disease; and the infant, if not relieved, ultimately sinks under the complicated affection. There is also danger of sudden death from a protracted spasmodic closure of the rima glottidis. In the treatment of these more complicated forms, the accompanying ailments must be primarily attended to. The gums should be lanced, the disordered functions of the digestive apparatus corrected, the febrile symptoms and cerebral disease combatted; and then the remedies proper for giving tone to the nervous system may be advantageously applied. Nothing is so effectual as sending the infant into the country. The patient frequently begins to recover immediately upon breathing the country air, though other remedies may have proved ineffectual. An instance is mentioned by Dr. Marsh in which the convulsions, which had ceased upon the removal of the infant into the country, returned immediately when it was brought into a newly painted house in the city; and the experiment was repeated with the same result. A change of the nurse is sometimes necessary, and if the child has been deprived of the breast too early, a return to it may be necessary. Where life has been apparently extinguished by the spasmodic closure of the glottis, artificial respiration, if instantaneously resorted to, may restore the patient. An instance of such a result was mentioned to Dr. Marsh by Dr. Johnson. The tobacco injection was administered with apparent advantage in one of the cases detailed in the paper before us; but this remedy is, we conceive, too hazardous in infants to be employed with propriety, unless the situation of the patient should be almost desperate.

In closing this very imperfect sketch of the work under review, we wish to express our sense of the benefit conferred, upon the profession by its authors. We know of no plan so well calculated to collect and garner up that fugitive knowledge, which is the result of individual experience; and which, though it may be of little comparative value in single instances, is in the aggregate of the highest importance, and must in the end contribute to advance the interests of medical science almost beyond calculation. In journals, which appear at certain stated intervals, and are usually designed to afford an extended view of the whole field of medicine, it is often necessary, in the absence of new facts, to fill up the pages with speculation or repetition of former knowledge, and to occupy much space merely in comments upon what has been presented to the public in another shape. In a work such as the Dublin Hospital Reports, which appears only when sufficient matter has been obtained to complete a volume, and the sole object of which is to embody the experience and observation of its contributors, there is no temptation to inflate trifles into undue magnitude, in order to fill vacuities, and no necessity to desert the path of fact and induction, for that of discussion or criticism. We do not, however, wish to undervalue journals or reviews. They have their uses, and indeed in the present state of the profession, are indispensable, if for no other purpose, simply to serve as a bond of union between the floating masses of medical knowledge, which would otherwise scatter themselves infinitely beyond the reach of individual vision. Our object is simply to express our conviction, that the plan pursued by the authors of the Dublin Hospital Reports, is incomparably the best for the purposes it is designed to fulfil. It is superior to the journal system in this respect, that it presents us with a magazine, from which medical architects may, in all future time, draw the materials of their theories and systems, instead of a workshop in which materials, finished and unfinished workmanship, the refuse or broken fragments of former manufactures, and wares which need repair from the injuries of time, or the changes of fashion, are all mingled together to answer the immediate wants of the community. It is also greatly preferable to the plan of writing separate books, whenever any thing is in the possession of individuals which they deem worthy of communication to the public. No one is willing to write a book unless he can swell it to a certain magnitude, and as very few have original matter sufficient to fill even a small volume, it is necessary either to indulge in unnecessary and tedious details or fruitless speculation, or to exercise ingenuity in dressing up former knowledge, so as to give it some air of novelty. Many experienced physicians who have valuable information to communicate, will neither submit to the drudgery, nor condescend to the littleness of this kind of work, even for the gratification of beholding their name on the back of a volume. Thus on the one hand, the gem of real knowledge is buried in a mass of rubbish and requires a wearisome search for its discovery; on the other, it goes down to the grave with its possessor, and becomes as though it had never existed. It is evident that these remarks do not apply to the preparation of systems in the various branches of medicine, which are necessary to facilitate study, and in which originality is not claimed except in the mode of arrangement. In the Dublin Hospital Reports, both the inconveniences above alluded to, are in great measure avoided. The writers, among whom are included the most eminent medical men of Ireland, can afford to be brief without the fear of seeming insignificant, and the consequence is, that almost every page sparkles with novelties in thought or in fact. We are pleased to be able to state that the first part of another volume is to make its appearance in the spring of 1832.

Art. VI.—DISEASES OF THE CHEST.

Clinique Médicale, ou Choix d'Observations recueillies à l'Hôpital de la Charité (Clinique de M. Lerminier,*) par* G. Andral, *&c.*

Clinical Reports, or Selected Cases, drawn from the practice of M. Lerminier, *in the Hospital of la Charité, by* G. Andral, *&c.*

In two preceding numbers of this Journal, we endeavoured to make our readers acquainted with the more prominent views presented by M. Andral on the diseases affecting the mucous membrane and parenchyma of the lungs. There remains for us to examine that portion of the work which is devoted to the investigation of the morbid affections of the pleura constituting the covering of the lungs, and that forming the immediate lining of the cavities in which these organs are lodged. The membrane now referred to, possesses a structure and character widely different from what appertain to the other tissues composing the lungs. The morbid products have likewise a very distinctive character.

In the experiments made upon animals, by injecting slightly irritating fluids, or by introducing foreign bodies into the cavity of the pleura, at a very early period a portion of the membrane loses its natural hue, and acquires a reddish tint. According to our author, in this stage, the redness depends on the sanguineous injection of the vessels distributed through the cellular texture immediately under the pleura,—this membrane still retaining its transparency, and being still devoid of red vessels. If, however, the inflammation becomes more intense, then the membrane will be found having its vessels more or less injected with blood, and presenting the appearance of minute dots, streaks, patches, and serpentine bands of a red colour, or this colour may be uniformly diffused over a surface more or less extensive. This latter appearance is stated to be of rare occurrence.

When the inflammation is fully established, the pleura will be found to have lost its transparency. Still scarce any degree of thickening can be observed, and the natural consistence of the membrane remains unaltered. On some occasions the separation of the pleura from the pulmonary parenchyma can be more easily effected than in the healthy state of the membrane, as if the connecting cellular tissue had participated in the inflammation, and become more easily torn.

The alterations in the secretions from an inflamed pleura, are more numerous and more various than the changes observed in the texture of the membrane. We have often occasion to observe, that these alterations in the secretions are the most obvious, when the membrane has undergone no perceptible morbid change.

The quantity of fluid poured into the chest may be so great as to compress the lungs, also to press down the diaphragm, and thus cause a prominence of the abdomen. By this accumulation of fluid, the intercostal space will be extended and appear more bulging than natural. The mediastinum often yields to the pressure of the fluid contained in either cavity of the thorax. Hence where the accumulation has taken place on the left side, the heart has been thrust to the right, and the apex lying immediately behind the sternum, the pulsations, during the lifetime of the patient, have been felt on the right side of the thorax.

The character of the secretion is exceedingly various.

The fluid contained in the cavity of the thorax may exhibit all the characters of serum, being of a light straw colour, limpid, and transparent. A slight tinge of red observable in the pleura, and some filamentous concretions on its surface, may afford the only evidences of inflammation, whose existence, during the lifetime of the patient, was announced by very unequivocal symptoms; more frequently we observe flakes floating in a limpid serum, or precipitated to the bottom of this fluid. The flakes being very minute and diffused through the effused serum, will destroy its natural colour and transparency. Occasionally the fluid contained in the cavities of the pleura presents all the essential characters of pus. Instances have been noticed of a kind of gelatinous matter being contained in the cavities of the chest. This concrete form of the effused matter is owing to the presence of fibrine, so frequently observed as one of the products of inflammation. A portion of red blood may likewise be effused, imparting more or less of its characteristic colour, at times appearing in coagulated masses; or the red particles may be separated, leaving a concrete substance resembling the fibrine of the blood.

The various effusions found in the cavities of the pleura are for the most part inodorous, except when a communication is established through the walls of the thorax, or when there exists a fistulous opening in the lungs admitting of the contact of atmospheric air.

Collections of air have occasionally been observed. They may be the immediate product of secretion; but more frequently they result from the admission of air through an opening in the lungs.

In inflammation of the pleura the effused fluid is naturally disposed to concrete and pass into the solid state. Hence are formed the pseudo membranes presenting such variety in figure, colour, consistence, thickness, and organization.

In the early stage immediately as this concretable matter is secreted, it may be considered as a compound of fibrin and serum. The proportions have never been ascertained. From what we have observed we believe that the serum in point of quantity will be found the predominant principle, though the power of becoming solid depends upon the presence of the fibrin, termed, by Mr. Hunter, and his immediate disciples, coagulable lymph.

This concrete matter is capable of agglutinating and uniting opposing surfaces. In the further progress it becomes organized and assumes all the properties of membrane. We remain ignorant of the process by which the chemical change is effected in this exudation, and how the fibrin and serum which were first observed have their place supplied by a substance convertible into gelatin.

At what period this concretable substance may be formed on the surface of an inflamed pleura, and at what period it may become perfectly organized cannot be determined by any experiments and observations which have yet been offered. Some experiments are recorded by Dr. Andral, but they afford no definite information on a subject so interesting in pathology.

The possibility of the pseudo membranes being absorbed is discussed by our author, and he inclines to the affirmative; but he does not support his opinion by those arguments which we think might be adduced in its favour. We can only reason from analogy, as the proof of such a process going on within the thorax must be wanting. But in parts coming more immediately within the cognizance of our senses, as the membranous concretions formed at the margin of the pupil, such adventitious matter has been known to disappear. And according to the doctrine of Mr. John Hunter all adventitious formations have an inferior vitality, and admit of being removed by the power of the absorbents.

Dr. A. has recorded some very interesting cases, showing that the pseudo membranes may be affected with tubercles, cancer, or be the seat of ossific depositions.

The various causes leading to the production of pleurisy have been so frequently noticed by medical writers, that we deem it unnecessary to accompany our author in this portion of his inquiries; but shall proceed to extract the more important information relating to the signs characterizing the disease.

It may seem a work of supererogation to bring before our readers an enumeration of all the symptoms which have been usually observed to accompany inflammation of the pleura. We believe, however, that on a subject so interesting and so deeply affecting the knowledge of the nature and probable issue of this disease, the attention of the practitioner cannot be too earnestly directed to the inquiry into the full value of every symptom, taken singly or collectively. In the succession of medical opinions, we find greater precision gradually developed, and what was at first dark and mysterious becomes in the progress of science to be clearly and distinctly understood. The discrimination between inflammation of the pleura, and that of the parenchymatous substance of the lungs was deemed, even by Cullen, to be almost impracticable. A more scrupulous attention to the various phenomena accompanying the disease, together with the noting of the morbid appearances observed after death, have certainly tended to introduce a more intimate acquaintance with the pathognomonic signs. Of late years percussion and auscultation, as applied to exploring diseases of the chest, appear to have afforded to many practitioners more determinate means of ascertaining the specific changes resulting from the morbid affections of the organs of respiration.

In the book before us the author has entered into a full disquisition on the value of the several symptoms observed in pleurisy. We shall endeavour to give in rather a condensed and abridged form the principal observations appertaining to this subject.

The pain so generally felt in pleurisy may vary in seat, intensity, and duration. The more ordinary seat of this pain is about the part covered by the breast; more rarely it is referred to the axilla, to some spot behind the sternum, beneath the clavicles or between the shoulder blades. The pain may be confined, or it may be diffused over a large portion of the chest. When the pleura covering the diaphragm is the seat of inflammation, the pain is generally felt in the hypochondria. The pain is commonly observed from the very commencement of the disease. At first it is often fugitive, and some days may elapse before it becomes fixed. In many instances the pain is very acute and unremitting, or there may be intervals of comparative ease. The inspirations are short, and the patient appears apprehensive of aggravating the pain every time he draws his breath, and the same motive induces him to suppress the slightest effort to cough. In the progress of the disease the pain gradually diminishes in intensity, becomes obscure, and may entirely cease before the termination of the disease. Sometimes the pain is suddenly aggravated, and creates a recurrence or severe increase of inflammation.

The pain or stitch in the side so often observed in cases of peripneumony, is considered as owing to the inflammation having extended from the parenchyma to the pleura investing the lungs.

In estimating the value of this symptom as characteristic of inflammation of the pleura it is incumbent on us to state, that the pleuritic stitch has not been noticed in some instances when after death the existence of the disease has been rendered unequivocal.

Rheumatic pain affecting the muscles of the thorax may be generally distinguished from pleurisy, by the absence of the other symptoms characterising this disease, and by pressure on the ribs, as well as on the intermediate spaces, causing an aggravation of the pain.

There is commonly great oppression in the breathing, the inspiratory efforts are short, quick and in rapid succession. When effusion has not taken place, the dyspnœa is attributable to the pain excited by the motion of the parts concerned in respiration. In every instance of inflammation there is a natural disposition to keep the affected part at rest. But the motions of the vital organs are incessant. Life would cease without the continual action of the lungs. The demands of the system are however supplied by the more frequent, yet less expansive, inspirations of the atmospheric air so essential to animal existence. The dyspnœa may not be observed while the patient remains quiet in bed, yet is well marked when he engages in conversation, rises, or makes any considerable effort. The compression of the lungs caused by the effusions into the cavities of the pleura will hardly fail to occasion great oppression in the breathing. Exceptions however do occur, and our author has given a remarkable instance (case 10). But where such collections have been observed without causing dyspnœa, they have been confined to one cavity, the lung on the opposite side admitting of more than its normal expansion, so that the system may be supposed not to suffer from the want of a due supply of air.

The dyspnœa continuing severe during the course of the disease, announces a fatal termination. Often the respiration becomes free long before the effused fluid is absorbed.* For the knowledge of this fact we are indebted to the information afforded by percussion and by auscultation, whether immediate or through the medium of the stethoscope.

The signs derived from the motions of the thorax serve to indicate certain modifications of the disease in question. In cases of costo-pulmonary pleurisy, inspiration will be effected by the contraction of the diaphragm. When the pleura covering the diaphragm is inflamed that muscle remains quiescent, and the expansion of the thorax is accompanied by a notable elevation of the ribs.

In pleurisy there are no violent fits of coughing. If cough accompanies the disease, it is short, frequent, suppressed, and for the most part dry. When expectoration is observed the sputum resembles that of catarrh. Upon the whole no very satisfactory inference can be drawn from the character of the cough and the accompanying sputa.

The patient lying on the affected side has been considered as pathognomonic of effusion. Dr. A. gives as the result of his experience, that in a great majority of pleurisies, with or without effusion, the patients lie on the back, though many incline somewhat to the affected side; and only a few were observed to lie directly on the side affected. When the effusion is considerable the patient never lies on the opposite side. When the inflammation affects the pleura covering the diaphragm, the horizontal position becomes very painful, and the patient requires to be supported in bed with his trunk erect, or even inclined forward.

Taken collectively, the foregoing symptoms afford strong presumptive evidence, that there is effusion into one of the cavities of the pleura; but more positive assurance may be obtained by mensuration, percussion and auscultation; and these taken in conjunction with the former signs, render the diagnosis in pleurisy very obvious and certain.

We often observe that the side in which the accumulation takes place is larger than the opposite one; and the mere increase of five or six lines is sufficient to make this evident. Dr. Andral states that he never knew it to exceed an inch and a half. A projection of the intercostal spaces, and a fluctuation, leave no doubt of the existence of fluid in the cavity of the thorax..

If the fluid is absorbed, and a corresponding expansion of the lungs does not take place, there will be a sinking in of the parietes of the thorax, obviating the void occasioned by the removal of the fluid.

The slightest effusion destroys the sonorous character of the affected side, and in proportion to the accumulation of fluid the sound emitted by the thorax on percussion will be more or less dull. At first this indication will be confined to the inferior portion, but it will extend as the accumulation increases.

When there is an effusion in both sides the dull sound will be equally observed on either side, and will correspond to the extent and position of the effused matter. (Cases 24, 27.) Where, however, the interlobular portion of the pleura is affected, the natural sound emitted on percussion will not be diminished. The remark applies equally when the pleura covering the diaphragm is the seat of a partial exudation, and when the mediastinum is similarly affected. Cases 18, 19, 20, 24, 25, are given in illustration of the truth of these remarks. .

Percussion cannot at all times be practised, in consequence of the pain which the operation excites.

If the ear be applied directly, or by means of the stethoscope, to the thorax of one affected with pleurisy, other and more positive signs will be perceived. From the commencement of the disease, and before any effusion or deposition has taken place, and the pain being acute, the respiratory sound is sensibly more obtuse on the affected side. In this stage no difference is perceived on percussion. The diminished intensity in the respiratory sound on the affected side admits of this explanation, that on this side there is not the full dilatation of the thorax, and consequently that less air is received into the lungs.

In proportion as matter is poured out on the surface of the pleura, the respiratory sound becomes more indistinct. But on the sound side the respiration is heard more distinctly than in ordinary health. Where a large quantity of fluid is effused the respiratory sound ceases altogether. In practising auscultation it is necessary to attend to the particular position of the patient, as a portion of the lungs may come in contact with the walls of the thorax, the effused fluid occupying only the more depending part of the cavity. Adhesions of the pleura covering the lungs, and that lining the cavity of the thorax, may form cysts, in which the fluid will be confined, and the influence of gravitation prevented.

On some occasions of large accumulation of fluid, a bronchial sound is perceived, but much more rarely, than in cases of hepatization of the pulmonary tissue, the compression of the lung preventing the air from penetrating beyond the bronchia. If these tubes are loaded with mucus the interposition of fluid between the lung and the walls of the thorax, will not prevent the appropriate mucous rattle from being heard.

The voice of a person affected with effusion into the cavity of the chest, conveyed to the ear by means of the stethoscope applied to the diseased side, has a tremulous sound, often resembling the bleating of a goat, whence the term œgophony, introduced by Laënnec. To obviate every possible deception, it will be necessary likewise to examine the sound side, as a tremour of the voice is peculiar to some persons in perfect health. This sound of the voice, or œgophony, is subject to certain modifications, according to the extent of the fluid accumulated in the cavity of the chest. Dr. Andral does not consider this peculiar resonance of the voice as pathognomonic of the accumulation of fluid in the cavity of the chest, for a similar condition of the voice is occasionally observed to accompany hepatization of the pulmonary tissue. But when the other symptoms indicating the inflammation of the pulmonary parenchyma are not present, the evidence of an accumulation of fluid is rendered exceedingly strong. In a note, he states, as suggested by Dr. Reynaud, that he has found "the absence more or less complete, of the vibratory motions of the walls of the thorax, communicated to the hand applied to the side of the patient when speaking, to be a certain indication of effusion, when the phenomenon is confined to one side. This examination of the comparative strength of the vibrations of the two different sides, does not require the patient to be seated, or that he should be uncovered. The quantity of fluid, and the extent to which it is diffused, may be easily ascertained by this mode of examination. In case of peripneumonia complicated with effusion in the cavity of the pleura, the symptoms belonging to inflammation of the pulmonary parenchyma, may not be fully developed; on directing the patient to lie on his stomach, the crepitating rattle will become very sensible and the œgophony will be converted into bronchophony. The existence of the effused fluid will be recognized by the following signs: a distinct sound resembling that produced by rubbing two bodies together by jerks, according in point of time, and corresponding in degree, with the motions of inspiration and expiration, will be perceived by the ear, assisted with the stethoscope applied to the side of the patient."

The first three cases recorded by Dr. Andral, are considered by him as instances of simple pleurisy without effusion; the patients recovered. We are furnished likewise with the history of eight cases of inflammation of the pleura, accompanied by effusion: as the patients likewise recovered, the presence of the fluid was inferred from the evidence afforded by percussion and auscultation. The third case in this class was occasioned by external violence. The ninth case in this collection, or the twelfth taken numerically in the order given by our author, proved fatal: and the signs of effusion afforded by percussion and auscultation during the lifetime of the patient, were verified after death. In the next case there was a collection of fluid in the cavity of the pleura, resulting from the communication with a tubercular excavation in the lung. The succeeding case affords an example of pleuritic effusion connected with gangrene of the lung. The fifteenth and sixteenth cases presented an effusion of blood on examination after death. The seventeenth case is that of a woman aged fifty-five; in this instance, after some days residence in the hospital, a tumour was observed below the right clavicle, and extended nearly to the mamma, which being opened, gave vent to a large quantity of pus. Four days after the operation death took place. Numerous cases are given with the view of illustrating the phenomena of partial inflammation of the pleura.

The 23d case affords an example of inflammation affecting the pleura of two opposing lobes, and terminating in the production of a cyst, containing about half a pint of pus. No indications of the presence of this fluid were perceived by means of percussion, or of the stethoscope. Cases 29, 30, 31, 32, are instances of inflammation with effusion occurring in both pleuræ.

ART. VII.—SOUTHWOOD SMITH ON FEVER.

A Treatise on Fever. By SOUTHWOOD SMITH, M. D., *Physician to the London Fever Hospital. London printed,* 1829. *Philadelphia re-printed, Carey & Lea,* 1830: *pp.* 448.

[CONCLUDING ARTICLE.]

In our previous analytic article, we followed the author through his first five chapters, on the ancient and modern doctrines of fever; on its varieties and proper classification; and on synochus, typhus, and scarlatina. The chapters which yet remain to be analyzed are severally on the pathology of fever; the relation between the phenomena of fever, or the theory of the disease; the causes of fever; and the treatment.

CHAPTER VI. *Pathology of Fever.*

In the history of the symptoms of fever, the author very properly sees nothing but the means of determining the nature of the *events* of which the symptoms are the signs. The events are the morbid changes, and we arrive at a knowledge of these, by first noting the symptoms during life, and secondly examining the condition of the organs after death. A comparison of the symptoms with the state of the organs as subsequently ascertained, teaches us what the symptoms indicate. By multiplying observations, we come to know all the important symptoms that arise, and by making a large number of morbid examinations, we equally arrive at a knowledge of all the important changes in structure; and by comparing, in an extensive series of cases, the symptoms with the altered states, we acquire the means of ascertaining, with a high degree of probability, the presence of an event which we cannot see, by the presence of the sign which we can see.

> "In proportion as our knowledge becomes perfect, we are thus enabled, during life, and at the bed-side of the patient, to see what is going on within his brain, within his lungs, and within his intestines, with as much distinctness and certainty, as we could, were the cases in which these organs are inclosed, and the organs themselves, transparent. The highly interesting and important fact demonstrated by the exam-

ination, in the manner of which we have just spoken, of large numbers of fever patients is, that the changes which take place in the organs are uniform; that the symptoms by which these changes are denoted are uniform, and, therefore, that it is possible to arrive at a perfect knowledge of the phenomena of fever." p. 169.

We are not so sanguine as to the perfectibility of our pathological knowledge, as the author would seem to be from the above extract; yet still we think that much certainty may be arrived at by pursuing the subject in the cautious and philosophical manner which he here lays down.

The author considers the pathology of fever under the two heads of the pathology of the solids, and the pathology of the fluids. The former he very correctly considers as most important and best understood. Indeed, with respect to the pathology of the fluids, very little if any thing is known. This department, however, may grow up to be of great importance. It belongs properly to the chemical pathologist. The knife of the anatomist, how keen soever its edge may be, has accomplished almost all that it is in its power to effect. The eye, aided by the strongest magnifying powers, has noted the minutest appearances of morbid structure. It seems that a nicer dissection is necessary, if we wish to push our inquiries further; and the means of such a dissection are furnished by the principles of chemistry. The nicest mechanical agent which can be conceived of is not competent to separate particles which are easily disunited by the influence of chemical attraction. Here then is a new and almost untried field of research, which it behoves us to cultivate. The pathologist ought not to be content with inspecting after death the appearances of different parts. The fluids during life as far as practicable; and the solids and fluids after death, ought to be subjected to analysis, or at least to examination by tests or re-agents. We hope the time is not far distant, when the case of chemical re-agents will be as constant an accompaniment of the pathologist, as the scalpel and magnifying glass.

1. *Pathology of the Solids—Appearances in the Head.* The arachnoid is the part most constantly diseased. It is either more vascular than natural, or else, it is thickened, opake, and milky. Not uncommonly, it is united at several points with

the dura and pia mater. The dura mater is less constantly changed in appearance. It is sometimes more vascular than natural, and frequently either adheres with preternatural firmness to the scull-cap, or is quite detached from it, in consequence of effusion. The pia mater is seldom changed in structure, but it is generally preternaturally vascular. This is also frequently the case with the theca enclosing the spinal cord.

The brain is seldom healthy. The most usual change is a higher degree of vascularity than natural. This change is sometimes confined to the surface, and sometimes is more manifest deep in its substance. In the latter case, it is evinced by the greater number of bloody points rendered visible by an incision. The substance itself is sometimes softer, sometimes firmer than natural. Occasionally the entire cerebrum is softer than natural; at other times, only particular portions of it. Abscesses in its substance are very rare. Where the cerebrum is preternaturally firm, the firmness is usually general. The cerebellum is always softer than the cerebrum; and this disparity may so obtain, as that the cerebrum may be firmer, and the cerebellum softer than natural. The pituitary gland also is very constantly softened, and often in a state of suppuration.

The cavities of the brain exhibit an excess of secreted fluid from the quantity of a drachm to several ounces. Common as this is, it is still more common to find an excess of fluid between the membranes; often between the dura mater and the arachnoid, almost always between the arachnoid and pia mater. The fluid effused beneath the arachnoid is gelatinous; but every where else it is like serum, being thin, transparent, and of a straw colour. Now and then it is thicker in consistence, opake, and even bloody; and sometimes that beneath the membranes contains flakes of lymph, or is mixed with pus.

The author makes a remark here which ought never to be lost sight of. It is this, that the conditions of excessive vascularity and increased secretion are never co-existent; on the contrary, the two states are inversely to each other.

The substance of the spinal cord is seldom changed; but its membrane is frequently not only highly vascular, but likewise contains a much larger quantity of fluid than natural.

Appearances in the Thorax.—In the thorax the mucous membrane of the bronchi is the part most usually diseased; and its morbid condition, while it is specific and uniform, is most characteristic of the febrile state. This morbid condition consists in preternatural redness, uniformly and strikingly darker than in common inflammation. This darkness increases as the tubes of the bronchi diminish in size, from the slightest discernible shade in the large trunks to one nearly black in the minute branches. This change in colour of the membrane indicates not merely greater vascularity, but an alteration of structure, as is proved by a preternatural thickening of its substance. The tubes themselves contain more or less fluid, which consists of mucus mixed with pus.

In scarlet fever the changes are somewhat different. The mucous membrane of the trachea, larynx, tonsils, and soft palate is inflamed; but the redness is much more vivid than that characteristic of continued fever without an eruption. But what appears to the author to be remarkable, and justifies to his mind the division of scarlatina which he has proposed, is, that when the cases are severe, the colour of the membrane becomes much darker; the deepness of the tinge increasing with the severity of the affection, until, at length, the colour closely resembles that which is peculiar to ordinary fever.

With regard to the state of the lungs in fever, Dr. Smith has so constantly found them either engorged with blood or infiltrated with serum, as to consider himself entitled to the conclusion that these appearances are essential parts of the morbid phenomena of the disease.

The author next enumerates additional morbid changes, which are found in examining those who die of fever, but which, not being always observed, are, therefore, not considered to be essential to the disease. These are inflammation and adhesion of the pleura, from the smallest to the greatest extent; the effusion of serum and lymph, and the formation of pus and adventitious membrane; hepatization and tubercular disease of the lungs; ulceration and abscess in every extent, and hæmorrhagic and calcareous depositions, together with enlargement and melanosis of the bronchial glands.

Appearances in the Abdomen.—The viscera of this cavity generally appear more vascular, and invariably darker than natural. The part which is most constantly diseased is the mucous membrane of the intestines, especially that portion of it which lines the ileum and cæcum. The chief varieties which it exhibits are three; namely, vascularity, thickening, and ulceration. Increased vascularity is the first stage of disease, thickening the second, and ulceration the third. In a great proportion of cases the increased vascularity is confined to the lower end of the small intestines. The thickening may arise either from deposition of organized matter in the substance of, or beneath, the membrane, or from both these causes. Thickening from interstitial deposition is often of very considerable extent; but when from deposition underneath the membrane it appears to be confined to the places occupied by the mucous glands. These glands are found in all states, from the mere abrasion of their surface to the entire ulceration of their substance. The ulceration occurs with two characters. If it takes place while the mucous coat is in a state of simple vascularity, the ulcer will be extensive and superficial; if, on the contrary, it occurs in the thickened membrane, it will be less extensive, but more deep, and its margin will be more elevated and its surface more ragged. It is in this form of ulcer that perforation of the intestine generally occurs. In proportion to the extent and degree of these changes in the intestine, will be the inflammation, enlargement, induration, and suppuration of the mesenteric glands.

The author describes the state of the spleen as follows:

> "It is quite remarkable with what uniformity the spleen is diseased in fever. In almost every case of genuine fever hitherto examined, it has been found altered in appearance, and deranged in structure. Its natural purple colour, is changed to a deeper and darker tint, and on the removal of the peritoneum that invests it, its substance on being slightly touched with the finger, breaks down into an almost fluid mass." p. 202.

According to Dr. Smith's observation, the pancreas is very constantly diseased in fever. The state in which he found it, was the very reverse of what was found in the spleen. It was always firmer than natural, and often exceedingly indurated, even to approach to a cartilaginous consistence in that portion of it attached to the duodenum.

Speaking of the stomach, the author says:—

> "This viscus having been regarded in France as the great source and seat of fever, particular attention has been paid to

the appearance it exhibits after death. The uniform result of the most careful examination of fatal cases in London, is, that the mucous membrane of this organ, is less frequently, less severely, and less extensively diseased, than any other portion of the same membrane. Occasionally it is more vascular than natural. This vascularity is seldom general; it is almost always confined to its pyloric half. In the few cases in which it has been very great, the membrane has been observed to be thickened and sometimes softened; but no instance has occurred in which it has been the seat of a single ulcer." p. 203.

According to the observation of Dr. Smith, the liver is least frequently deranged in structure, of all the abdominal viscera. The blood contained in it is peculiarly dark and always fluid. The gall-bladder contains a large quantity of bile, which is either pale and more fluid than natural, or extremely dark, and very much inspissated.

We have thus condensed from the author, the account of all the morbid conditions of the abdominal viscera, which are considered by him as peculiar to fever; but there are others which form no part of the febrile changes. These are, inflammation of the peritoneum; effusion of lymph upon its surface, or of serum into its cavity; agglutination of the intestines; inflammation of the mesentery; false adhesions between the liver, spleen, and mesentery; tubercles in the liver; induration of its substance; tubercles and abscess of the spleen; thickening of the coats of the bladder, and inflammation of its mucous membrane. In the female, vascularity and enlargement of the ovaria, to which hydatids are sometimes attached; vascularity of the external surface of the uterus, and inflammation of the os tincæ and of its internal membrane. Disease of the kidney in either sex is a rare occurrence.

We have now gone through the morbid appearances in the head, thorax, and abdomen, which the author considers essential to the existence of fever. This then is an outline of his pathology of the disease, so far as the solids are concerned; a pathology which he abundantly supports by the details of ninety-six cases, which occupy about one hundred pages of his treatise.

After going through the cerebral cases, the author makes some summary observations respecting them, of a highly interesting nature, from which we shall make some extracts. He says,

"From the study of these cases, we see that the process of disease is as uniform as that of health, or of any other process of nature; that certain phenomena constantly take place; that they follow a determinate order; that the events seldom or never vary; that their relations to each other never change; that in these cerebral cases of fever, a preternatural fulness, and apparently increase in the number of the vessels of the brain and spinal cord, or of their membranes, is always present; or that if a case do now and then occur, in which even *no* preternatural vascularity can be discovered, such an event is exceedingly rare; that this fulness and increase of the blood-vessels is either identical with, or passes into the state of inflammation; that the state of inflammation, after a certain period, produces results which are known to be effects of inflammatory action in other parts of the body; that these products of inflammation consist of a given number; that the whole of that number never concurs in any one given case, but that two or more are frequently found in combination; that the laws by which any one of them is formed rather than any other, are at present wholly unknown; while instances do occasionally occur, although they are extremely rare, in which the state of mere vascularity alone subsists without the formation of any inflammatory product that can be discovered.

"From the study of the history of these same cases, we further see that the indications of this inflammatory state of the brain and spinal cord, or of their membranes, are as uniform as the existence of the state itself; that certain symptoms invariably accompany it; that these symptoms not only declare with absolute certainty, that this process is going on, but likewise, in general, clearly mark its progress; and that this series of symptoms, and the place in which each stands in the series, is as follows: namely,

"Pain in the head, or giddiness, or some other uneasy sensation in this organ, attended with a loss of sleep and with a derangement in all the sensorial faculties—these are the signs of the presence of the disease in the brain or its membranes. Pain in the back, loins, or limbs, or diminution of the power of voluntary motion—these are the signs which mark the existence of the disease in the spinal cord or its membranes. These symptoms having been present a certain time, and at length succeeded by diminution of the pain or uneasiness, *without a corresponding diminution in the other febrile symptoms*, but with an *increase* in *some* of them; for instance, with an increase of the sleeplessness and restlessness; at last, total cessation of all pain or uneasiness, together with a diminution of the sensibility—these are the signs which mark the progress of the disease, and which, in general, denote a transition from the state of mere inflammation to the formation of some inflammatory product. Thus far the change of state is certain and the signs which denote it invariable; to the latter other symptoms are added, which occur in the great majority of cases, but not in all; namely, delirium, muscular tremor, involuntary and unconscious stools, acceleration, and, in general, increased and increasing weakness of the pulse." p. 242, et seq.

Dr. Smith admits that, in the present state of our knowledge, we are ignorant of the laws by which, in one case, the bloodvessels pour out serum, in another secrete pus, in a third soften, and in a fourth indurate the cerebral substance; so that we cannot know, by any invariable signs, what is the precise nature of the diseased product formed. Neither does the author conceive that this kind of information would be of much practical importance, supposing that we are possessed of other points of information which are within our reach. Thus he says:

"In the mean time, what we may know, and ought to know, is when inflammation exists: what we may in general further know is, when some product of inflammation has been poured out still more to oppress the brain: to the thoughtful and discerning practitioner, it would be without doubt, a high satisfaction to be able to carry his diagnosis still further, and to ascertain *what* that product is; the desire to arrive at such precise and perfect knowledge appears to me to be in the highest degree meritorious: the constant and unwearied endeavour to acquire it may not always succeed with reference to the particular object immediately pursued, but it cannot fail to increase his power and to strengthen his habit of observation; and the sure reward of his devotion thus truly honourable and faithful to the duties of his profession, if it should not be, as it may not invariably be, the confidence and the gratitude of his patient, will at least be the proud consciousness that he has deserved both.

"Were it possible to ascertain with absolute certainty and with perfect exactness, in which of its various modes inflammation of the brain and its membranes terminates, it would be a subject of interest, as far as we can at present perceive, rather to the physiologist and pathologist than to the practical physician. To the latter the great fact which is of paramount importance that he should know is, that inflammation is going on in the brain of his patient, and that if he cannot put a stop to it in the course of a day or two, it will in that short space of time terminate in some irreparable change of structure, of which death will be the inevitable consequence. This, it is again repeated, it is always in his power to know; and as there is no one fact which can or which ought to have so much influence upon his practice, so there is no diagnosis which it is of so much importance that he should acquire the habit of forming." p. 245, et seq.

The author next gives the details of twelve fatal thoracic cases, with their appearances on dissection, which are not accompanied by any general remarks. These are followed by the narrative of thirty-one abdominal cases with dissections.

The abdominal cases are summed up by a few pages under the head of general results. The order in which they are placed, presents a complete series of morbid changes in the intestines, from the slightest vascularity to the most intense inflammation; and from mere elevation, or superficial abrasion of the mucous membrane, to the most extensive and deep ulceration. The author contends for the great sameness in the morbid appearances as far as they go, where the contents of the abdomen are implicated; the difference being merely a difference in degree. He also contends for the remarkable uniformity of the symptoms denoting these morbid changes. Their great peculiarity, according to him, is *their want of prominence.* They may always be discerned, but they seldom force themselves upon our notice. The reason why they have this character is that they take place in a state of the system, incompatible with acute sensation of any kind. The state of system alluded to is an existing affection of the brain. Thus according to the author's pathology, the affection of the intestines in fever is never a simple or single affection, but one preceded and accompanied by an affection of the brain. Now the certain consequence of the cerebral affection, is a diminution of sensibility; and it is, therefore, quite impossible, unless the cerebral affection be unusually slight, that the intestinal affection should ever be attended with violent pain. It is not then to the patient's own complaint of pain, that the practitioner is to trust for the discovery of abdominal affection in fever. But though he will seldom complain of pain, yet, in the great majority of cases, the abdomen is tender on pressure. Where it is not, the cerebral affection must be peculiarly severe. Another symptom is still more constant than tenderness on pressure, and that is, a loose state of the bowels. When both concur, there can be no doubt, according to the author, that the diseased process is going on in the intestines. But as the tenderness may be obscured or lost by the intensity of the cerebral affection, so, according to Dr. Smith, in the progress of the intestinal disease, the bowels sometimes become regular, or even constipated. In the absence of both these signs, the practitioner, who sees the patient for the first time while in this stage of the disease, must depend on its previous history in making up his judgment.

On account of the importance of the diagnosis in the abdominal cases, the author thus briefly recapitulates the signs by which they are characterized.

> "They are, tenderness of the abdomen on pressure; redness of the tongue, especially at the tip and edges; loose stools, in general preceded by nausea and vomiting, and in the most exquisitely marked cases, and in their advanced stage, followed by a mixture of blood in the stools, and a swollen, hard, and tympanitic state of the abdomen. All these symptoms by no means always concur in the same case; but the presence of one or two of them will be sufficient to guide the attentive observer to the knowledge of the disease." p. 302.

The pathology of the mixed cases is next illustrated by the author, by twenty-one examples of this form of febrile disease. This is followed by some general conclusions, strikingly and eloquently expressed, with which the pathology of the solids is closed.

From what he has previously said, the author conceives himself entitled to assert that the pathology of fever consists in the history of inflammation; and the description of the individual changes that take place in the organs that constitute the febrile circle, is an enumeration of the various products of inflammation which are formed within them. Except when the system is completely overwhelmed by the force of the attack, the severest cases are those in which the inflammatory action is highest, and seated in the greatest number of organs. The mixed cases, therefore, present examples of the most mortal form of fever, witnessed by the author in the London fever hospital; and the reasons why they are so are summed up in the following masterly manner.

"These are the cases in which the symptoms are most urgent, and in which they run their course with the greatest rapidity; these are the cases in which the debility is most striking; in which it comes on the most early, and proceeds to the greatest degree of prostration; these are the cases which are the most purely typhoid, the most truly adynamic; these are the cases which, in general, commence with the most sudden and alarming deprivation of physical and mental power; in which all pain and uneasiness are soonest lost in stupor; in which the stupor most rapidly increases to insensibility; in which delirium comes, perhaps, as early as the third or fourth night, accompanied with its attendant, muscular tremor, and too often with its most formidable ally, erysipelas; in which, at this early period, the respiration is short and hurried, the skin dusky, the colour of the cheek purple, the tongue brown and dry, the lips and teeth sordid, the abdomen tender, and the stools loose; in which, in a day or two more, the abdomen is swollen, tense, and tympanitic, the stools passed in bed, the patient prostrate on his back, completely senseless and powerless, while the pulse is 120 or 130, and so feeble that it can scarcely be distinguished. But what is this debility? in what does this adynamic state consist? It consists of a peculiar affection of the nervous system, followed rapidly by intense inflammation of the brain or of the membranes, or of both; by intense inflammation of the mucous membrane of the bronchi, and by intense inflammation or extensive ulceration of the mucous membrane of the intestines. And why is the patient weak or adynamic? Because he is not only assailed by an affection of the nervous system, which deprives the organs of the stimulus necessary to enable them to perform their functions with due vigour; but, at the same moment, inflammation is set up in three of the great systems, the healthy action of which is most essential not only to strength but to life; thus the citadel is attacked at one time at three of its capital points." p. 336 et seq.

With regard to those cases in which the system is overwhelmed, the author holds the following language.

"Now the peculiarity in these cases is, that the internal organs, after death, exhibit no signs of inflammation, unless vascularity be inflammation. The organs which, in ordinary cases, are inflamed, are in these cases tinged with blood. Are the terms debility or adynamia appropriate expressions to designate even this condition of the organs? Just as appropriate as they would be to express the condition of a person who is struck dead by lightning, whose muscles are incapable of contraction, and whose blood will not coagulate. Those who apply these terms even to such forms, and *à fortiori* to any other forms of fever, must be ignorant either of the nature of the disease, or of the constitution of the human mind. If they know the disease, they know that the patient appears to be weak, because the primary operation of the disease is upon the nervous system—an operation which, as has just been stated, while it disturbs that due and equal distribution of nervous influence which is necessary to the healthful action of the organs, and, therefore, to the general strength of the system, is not incompatible with, but promotive of an excitement of the vascular system, which terminates in inflammation. Debility is the last, the ultimate result of the disturbance of the functions of a certain series of organs; but part of this very disturbance of function, and a most important part, a part which exerts the greatest influence over the progress of the disease, and the life or death of the patient, consists not in the weakened, but in the augmented strength and the increased activity of the vascular system. To designate the ultimate result on the system by a term which gives an entirely false view of the individual processes in the economy, by which that ultimate result is produced, must, we repeat, arise either from an ignorance of the true nature of those processes, or from not reflecting on the influence which words exert over the manner in which the human mind conceives of things. For the sake of the progress of the science of medicine, for the sake of rendering the language of medicine the correct expression of the knowledge which the science has actually attained, and, above all, for the sake of accomplishing the great object of medicine, the preservation of human life, it is high time that these terms with which physicians have so long allowed their minds to be abused, should be banished from medical nomenclature, or, at any rate, from that part of its nomenclature which appertains to fever." p. 338 et seq.

II. *Pathology of the Fluids.* We have already made some general remarks on what we conceive to be the importance of the investigation of the pathology of the fluids; and we have not space to enlarge on this head separately. We think, however, that the author has undervalued this department of inquiry. It is true, that changes in the fluids, compared with those in the solids, are secondary, both in point of time and of importance; still the detection of these changes may be highly important in identifying a particular state of disease, not to be distinguished by any other means. If the chemical investigation of morbid fluids has not, to any extent, been practically useful, it arises from the circumstance that this field of inquiry has not been explored, not that, if cultivated, it would fail to afford a rich harvest of fruits.

CHAPTERS VII. and VIII. *Theory of Fever. Causes of Fever.*

In these two chapters, the author has treated the subjects to which they relate in an interesting manner; but as our space is limited, we reserve all that is at our disposal, to be occupied by the analysis of a more important chapter, namely, that which is devoted to the treatment of fever, and with which the work closes.

CHAPTER IX. *Treatment of Fever.*

The author sets out by repeating the general principle that febrile inflammation and ordinary inflammation are not identical, and, consequently, require different modes of treatment. Though the febrile inflammation is not the primary affection in fever, so far as regards the order of events, yet, according to Dr. Smith, it is the primary affection, so far as the treatment is concerned. It is against the febrile inflammation, therefore, that the remedies are to be aimed; and though these remedies are the same in kind as for ordinary inflammation, yet they must be applied differently, and varied as to the extent to which they are carried. Before their proper use can be understood, Dr. Smith thinks these questions must be answered;—namely; What is the precise object in view in the treatment of fever? What is it which is most important to do and which is in the power of medical art to accomplish?

Dr. Smith thinks it is impossible to cut a fever short by a stroke of art, and views the attempt as dangerous. It may be moderated, it may be gradually subdued, and from being violent and dangerous, it might be rendered mild and safe; and this is all that can be accomplished.

Since different fevers only differ in their intensity, the author considers remedies under the two heads; 1st. Of those appropriate to the disease considered generally; and 2ndly, Of those required by its different degrees of intensity.

Dr. Smith is of the opinion that the common continued fever of Britain requires but little treatment. "Confinement to bed; the abstraction of stimuli; fever diet; a calomel purgative at night, consisting of one or two grains of calomel with six or ten of rhubarb, followed in the morning with half an ounce of castor oil; and these remedies repeated every day, or every alternate day, constitute the whole treatment which is required."

Whenever the fever passes beyond the mildest form, it becomes a serious disease. Unless the proper remedies are applied early and vigorously, there is no security that the disease will not pass into the severer form, and destroy the patient. This severer form consists in the setting up, in the organs included in the febrile circle, of inflammation which progressively becomes more intense, unless arrested by the timely interference of art. What is to be done is clear, namely, to remove the inflammation; and though this object being attained, will not cure the fever at once, it will enable it to proceed mildly and safely to its termination.

What then is the proper remedy to prevent the transition of excitement into inflammation? Dr. Smith answers this question in a single word—Bleeding. As he considers the febrile inflammation to be the inevitable consequence of the febrile excitement, he conceives it to be the height of folly to wait till that inflammation has formed. By doing so, we lose precious time, during which the disease is acquiring activity. Such an absurd course, the author compares to what a fireman's conduct would be, if he remained inactive before a building on fire, so long as the fire continued smouldering, reserving his exertions for the moment, when the flames had so far progressed as to burst from every door and window.

The author is of opinion that bleeding cannot be performed too early in fever. He thinks that the earliest moment is the best, as well because it makes the greatest impression on the disease, as because it weakens the patient least when done at that time. But we will let him speak in his own words:—

"When inflammation has actually come on, there is then not a moment to be lost; that inflammation must be stopped. The accomplishment of this object is the great end which the practitioner should aim at in every thing he attempts; until he has done this, he has done nothing; until he has done this he ought to give neither sleep to his eyes, nor slumber to his eyelids; until he has done this, he ought to feel that there should be no rest for himself, because there is no safety for his patient. Until the inflammation is subdued, blood must be taken; be the quantity it may be necessary to abstract, in order to accomplish this object, what it may; be the bleedings it may be requisite to repeat, what they may; the vein must be allowed to flow, and it must be opened again and again until this object is secured. If this golden opportunity be allowed to escape, and this object be not attained, the risk is most imminent. During this early period, the physician is master over the disease; if he allow it to pass away without obtaining the victory, the disease becomes master over the physician. From that moment his control over it is gone. Never can he regain his lost advantage. Fever is a process that advances with a step as steady as time, and like time it never retraces a step. At a subsequent period its progress may be sometimes retarded, and now and then it may be weakened; but, after the lapse of a few days, this is all which the most complete success is then capable of accomplishing." p. 394.

"The abstraction of blood must be carried to the extent of subduing the inflammation: there is no other limit to the quantity to be taken, but that which is adequate to subdue the inflammation. To attempt to measure the quantity by drachms or ounces is wholly vain; because, if the remedy be properly employed, the quantity will vary in every individual case. To take an ounce more than the subdual of the inflammation requires is injurious; to take an ounce less is still more pernicious; to take the quantity necessary to accomplish the object, and no more, is to use the lancet—that powerful instrument, so dangerous in rash hands, and no less dangerous in weak—with the discernment and decision of a master. He who with a knowledge which gives and which justifies boldness and decision, is able thus to employ this great remedy, is a skilful physician, who has derived from study and experience the best fruit they can yield: he who has not reached this perfection of his art,—(and who among us can pretend to the attainment?) must still go on to observe and to learn." p. 395.

The reader perceives from these extracts, that the author [illegible] disposed to use bleeding in fever with no sparing hand. Where the truth may lie with reference to the proper use of this remedy, it is difficult to determine. Whatever else may be uncertain respecting this point, physicians may be considered as pretty unanimous, that whatever bloodletting must be done in fever, ought, as a general rule, to be done early. Here we certainly agree with the author. Many difficulties, however, surround the inquiry as to the propriety and amount of venesection in fever. Suppose a man gifted with omniscience were to know that a certain patient to be cured of fever must be bled six times. Suppose his physician bleeds him three times, and the disease proves fatal; it is ten to one that the by-standers as well as the physician himself will conclude that death was produced by too free depletion, whereas, on the contrary, it was the consequence of the want of it. Again, a physician is often placed in the following situation. He is in doubt whether bleeding ought to be practised, and he reasons thus:—If I bleed and the patient die, it will be said I have killed him by the bleeding; but if I do not bleed and the patient die, no one will infer that the fatal issue was for want of a bleeding. Thus it is, that, in some cases, by attributing effects to an imagined excess in the use of a remedy, which really belong to its inadequate employment; and in others by listening to the suggestions of timidity, we deceive ourselves, and endanger the lives of our patients.

The author deserves much credit for the able manner in which he has, in different parts of his treatise, determined the true value of the word debility, as applicable to fevers. The patient will often tell his physician that he is weak, the expression merely meaning that he is muscularly weak. But is this condition of the nervous and muscular system, decisive as to the state of the bloodvessels? We think not; for their action may be great when that of the muscles is very small. Indeed the muscular debility may depend upon the over excitement in the bloodvessels, and be relieved by the abstraction of blood.

When we reflect on several circumstances; such as the quantity of blood in the healthy human system, (estimated on an average at twenty-five pounds,) and the large quantity of blood lost by certain accidents and diseases without danger or injury, we may be disposed to admit that bloodletting at the onset of fever is used with too sparing a hand. Among the robust, and on the first attack of fever, the tolerance by the system (so to speak) of bloodletting is at least as great as in the healthy subject; and while by the abstraction of blood we use a remedy, confessedly potent in the subdual of excitement, not to say inflammation, we are gaining a mechanical advantage by disembarrassing the system of part of its fluids, too redundant to be safely circulated during the tumult of disease. To use the expressive simile of Rush, the ship of life is in danger, and it is best and safest to throw some of the cargo overboard to make her ride out the storm.

Dr. Smith contends, that to combat the London fevers, the quantity of blood necessary to be abstracted is not large. The principle of practice which he adopts, namely, early and prompt depletion, so far from calling for frequent and large bleedings, has, on the contrary, the effect, according to him, of saving the blood of the patient by taking the due quantity at the proper time.

Speaking of the difference between febrile and pure inflammation, the author expresses himself thus:—

"Smaller bleedings will subdue febrile than pure inflammation. Febrile inflammation is a modified inflammation, the modification consisting in less activity in the vascular system and greater depression in the nervous. Whence a moderate bleeding will make an impression on febrile inflammation, which can be equalled by [upon] pure inflammation only by a large bleeding. He who takes away sixteen ounces of blood in fever adopts a bolder and more decisive practice, and brings more effectual relief to his patient, than he who abstracts thirty ounces of blood in some other form of inflammation; and he who takes away six ounces of blood in one febrile case, does more than he who takes away sixteen in another. But the question never can be whether the bleeding should be small or large: that is nothing. The thing to be considered is the condition of the organs, the state of the system; not the ounces of blood to be taken, nor the number of periods at which it is to be removed. Abstract blood to the subdual of the inflammation—that is the rule; abstract blood at the very commencement of the inflammatory action; if you are in time to do it, at the very commencement of the febrile excitement. Then little blood will be lost, and the patient will be safe." p. 396.

The following extract will give the reader an insight into the details of Dr. Smith's practice in the common fever of London.

"If, after the abstraction of sixteen ounces of blood at the commencement of the attack, the vascular excitement be not completely subdued, in the course of three or four hours the same quantity must be again taken; and if, the next morning, that excitement continue, it will probably have already passed into inflammation; and, therefore, the vein must be once more opened, and the blood allowed to flow until the pain, wherever seated, be entirely removed. To check the disease, instead of subduing it, does not in the least diminish its future strength, and, by weakening the powers of life, it even hastens the period of mortality. Nothing is more common than the appearance of typhoid symptoms, on the second or third day after bleeding has done nothing but lessen the inflammatory action; whereas, had it been carried somewhat, and generally only a little, further, the patient would have been convalescent at the very period when his danger becomes most imminent. In cases where general bleeding produces a decided impression on the inflammation, but does not stop it, cupping, or even leeches, will often complete what the lancet commenced.

"A due impression having been made upon the inflammation by bleeding, the subsequent treatment should consist of purgative medicines, given to the extent of producing three, or at most four stools in twenty-four hours: beyond that number no advantage is obtained by purging; more frequent evacuations, indeed, weaken the patient, but not the disease. The best purgatives consist of one or two grains of calomel, with six or eight of rhubarb, repeated every night, or every other night, and followed the next morning by two drachms, or half an ounce of castor oil, or by the common senna draught. Cold sponging, if the skin be hot; acidulated drink, if there be thirst; perfect quiet, a dark room, a silent nurse, affording prompt attendance, with a noiseless step, a cheerful countenance, and no words—this, together with three tea-cups full of thin arrowroot or gruel, in the twenty-four hours, given in divided portions, at intervals of about two or three hours, comprises all else that will be required, or that will be useful, until the period of convalescence." p. 398 et seq.

One point of great difficulty is touched on in this extract, namely, the appearance of typhoid symptoms in the course of fever, and their cause. If, during the course of depletion, these symptoms should arise, most practitioners consider it as a signal to desist from the further use of debilitating remedies. How strange would it be, therefore, if Dr. Smith should prove to be right in supposing that these symptoms are produced not from the depletion being carried too far, but because it has not been carried far enough. This question is one which should engage the anxious consideration of every practitioner. For ourselves we may say, with reference to a kindred point, that we believe that we have seen typhoid symptoms induced by the premature and too urgent administration of stimuli; and we can easily conceive it possible to have them produced by stopping depletion too soon.

We have felt inclined to smile at observing how strangely Dr. Smith has collocated his remedies as given in the last extract. After enumerating cold sponging, acidulated drink, quiet, a dark room, a silent nurse, with her cheerful countenance and no words, (the latter remedy not easy to be obtained at any price,) he then goes on to say—" this, together with three tea-cups full of thin arrow-root, &c."

Dr. Smith treats certain remedies in fever in rather a cavalier manner, and seems to disdain to notice them in his text. Thus, he says in a note that " it would be trifling, while treating of so momentous a subject as the proper management of fever, which requires the prompt, vigorous, and yet cautious exhibition of the most powerful remedies, to spend any time in discussing the merits of saline, refrigerant, diaphoretic, antimonial medicines, and the rest of the apparatus, which unfortunately continues to hold the place of direct, honourable, and well-earned (if any thing can be well-earned) remuneration of the practitioner." We would ask, why would it be trifling to notice these remedies? May not some of them be even justified on the pathological principles, which the author has himself laid down. He gives calomel and rhubarb in doses which may suit the London fever, but which would be trifling if employed in most of the fevers of the United States. Why are saline remedies objected to? Is it because they are too weak or too powerful; or are they inapplicable to fever? For our parts, we think that many of the saline aperients deplete without irritating, and cool the system in an evident manner. The common senna draught, recommended by the author, is much more irritating than a dose of sulphate of magnesia. Again, we would ask, on what principle are diaphoretics to be objected to? Nature often depletes to a certain extent by the skin, and sometimes with relief. The natural solution of the fever in intermittents is by sweat; and independently of the depletion which it effects, it is refrigerant on the same principle that cold sponging is refrigerant, namely, by the evaporation which is constantly going on from a perspiring surface. With respect to antimony, long experience has shown that it has power to lessen arterial action, and why should the antimonial medicines be discarded? So far as the remedies enumerated by Dr. Smith may be connected in England with the reprehensible practice of giving them in complicated formulæ, and to an inordinate extent, as the only means possessed by the practising apothecary to run up a bill, as he charges nothing for his advice, we object to their employment in so unjustifiable a manner; but here evidently our objection is to the abuse, not the use, of the remedies in question.

Having given an outline of his treatment of the common fever of London, the author goes on to speak of the circumstances under which it is often allowed to become formidable. The symptoms being mild at first, the practitioner is deterred from using a remedy esteemed so violent as bloodletting. He asks, why should blood be drawn? "no symptom is prominent, no symptom is urgent."

It is from this kind of temporizing, inefficient treatment, that the author thinks that typhoid, or adynamic symptoms often have their origin. The disease is allowed to take its course, and the product of every fever, at some point of its progress, is adynamia. Having stood by while the disease was advancing, doing next to nothing to arrest its course, the practitioner now perceives that the disease is severe, and perhaps resorts to the lancet. "But the bleeding relieves no symptom; it increases some; the progress of the inflammation is not checked; the adynamic symptoms are fully developed; the patient is more prostrate, and the fever in all respects of a worse character. The inference is, that bleeding is a most inefficient and dangerous remedy in fever; and this inference is deduced from experience; those who draw the conclusion, judge from what they see; they disclaim reason; they pretend only to understand and to respect the lessons of experience."

In this way, by resorting to bleeding when it is too late, the remedy gets a character for being dangerous; whereas, it is only the too tardy resort to it that is dangerous. In this aggravated stage of the disease, the author asks, of what avail can bleeding be? "The blood is no longer in its vessels; it is beneath the membranes, or in the ventricles, or at the base of the brain; the inflamed capillaries have done their work upon the cerebral substance, and upon its membranes; and have left proof enough of their activity, in the thickening of the one, and the softening or the induration of the other. What can bloodletting do in this state of the organ? what can shaving the head and applying cold do? what can blisters do? what can purgatives do? and above all, what can wine do? Nothing can be done; at least, nothing effectually or certainly."

Dr. Smith next speaks of a middle state of things, when bloodletting has not been used in the beginning, and yet where the disease has not made an irretrievable progress, as evinced by the continuance of pain and sensibility, and by a state of pulse, not very quick, and weak. Here the author believes, that in many cases, the loss of a few ounces of blood may stop the inflammation; but he concedes that it requires the nicest medical discrimination to determine, when a resort to bleeding, under such circumstances, is admissible; and asserts, that if the remedy should not arrest the inflammatory action, it precipitates the fatal issue. Well may a practitioner, at such a crisis of disease, shrink from the employment of a remedy, beset with such difficulties in its application, as are here described by the author.

But instead of bleeding, stimuli may be necessary. Thus, says Dr. Smith, the change of structure consequent to inflammation may not be so great as to be incompatible with life; and the inflammatory excitement may have so far exhausted the powers of life, as to make artificial stimulus absolutely necessary. Here the vascular action is weak, and there appears to be a want of a due supply of arterial blood to the brain. Of all stimuli, the author prefers wine or brandy. He recommends, in doubtful cases, to administer a few ounces of wine, as a test of its propriety. If the restlessness, heat, and delirium increase, or if, after some hours, no effect is produced, the remedy will seldom be of the least service. When capable of doing good, the improvement, if not sudden and striking, is manifest in a few hours. "If the pulse become firmer, and especially slower, the tremor slighter, the delirium milder, the sleep sounder, the skin cooler, and above all, if the sensibility increase, and the strength improve, it is then the anchor of hope." The author then adds a good rule, that as soon as excitement is reproduced, the stimulus should be withdrawn:

The following paragraph contains important precepts, and as it does not admit of being condensed, we give it entire.

"No certain indication for the administration of wine can be drawn from one or two symptoms alone; neither from the state of the pulse, nor of the skin, nor of the tongue; neither from the tremor, nor from the delirium. There is an aspect about the patient, an expression not in his countenance only, but in his attitude, in the manner in which he lies and moves, being, in fact, the general result, as well as the outward expression of the collective internal diseased states, that tell to the experienced eye, when it is probable that a stimulus will be useful. Depression, loss of energy in the vascular system, as well as in the nervous and the sensorial, indicated by a feeble, quick, and easily compressed pulse, no less than by general prostration, afford the most certain indications that the exhibition of wine will be advantageous: and if the skin be at the same time cool and perspiring, the tongue tremulous, moist, or not very dry, and the delirium consist of low muttering incoherence, these symptoms will afford so many additional reasons to hope that it will prove useful. On the contrary, if the skin be hot, the eye fierce or wild, the delirium loud, noisy, requiring restraint, and the general motions violent, it is as absurd to give wine, as to pour oil upon a half-extinguished fire, with a view of putting out the yet burning embers." p. 404.

Dr. Smith is of opinion that neither wine nor brandy is to be given in large quantities. All the good that they can effect, can be accomplished by moderate quantities of them; and if such quantities are of no use, larger quantities will be of no avail.

On the exhibition of opiates, the author has the following observations:—

"There is a condition of the system in which an opiate puts a stop to a state of exhausting agitation and restlessness, procures tranquil sleep, lessens delirium, and operates most favourably on all the symptoms. This may be when the skin is cool and perspiring; the tongue moist, or not very dry; the delirium low, and the pulse and the patient weak. No kind of opiate in any form in which it can be administered ever proves in the least degree beneficial, whenever the skin is very hot, the tongue very dry, or the general motions and actions of the patient are violent." p. 406.

Dr. Smith speaks next of mercury. In some cases, where the inflammatory action has proceeded unsubdued to the production of change of structure, accompanied probably with copious effusion, especially in cerebral cases, he has seen the patient, as it were, snatched from death by this remedy, where the system could be brought under its influence. Its success, however, is attended with this drawback, that the mind, after recovery, often remains feeble, infirm, and almost fatuous. The best mode, according to the author, of exhibiting the remedy, is to give two grains of calomel with half a grain of opium, every three, four, or six hours.

Having given above a pretty full account of the author's practice in fevers, which being at first mild, become subsequently severe, the next cases spoken of are those which are severe from the commencement. To these, the author considers the general principles of his treatment already detailed to be applicable, with the understanding that the remedies appropriate to meet the severer symptoms, are to be employed vigorously and with the least possible delay. In such cases, the delay of a few hours, if it does not cause the loss of the patient, puts his life in imminent hazard.

As our readers might suppose, Dr. Smith conceives that the varieties of fever, characterized by him as cerebral, thoracic, abdominal, and mixed, require modifications in treatment; and he next considers these modifications. In illustration of the treatment of cerebral cases, he gives the instructive case of Dr. Dill, the resident medical officer of the hospital, in which bloodletting being freely used from the commencement of the attack, was not wholly successful in subduing the pain in the head. Ice was applied to the whole scalp without success. Under these circumstances, the author resorted to what he calls the *cold dash*, which he thus describes:

"It consists of pouring a column of cold water upon the head in a continued stream from a height of from six to ten feet. The mode of applying it is as follows. The patient is seated in a large tub; a table is placed at the side of the tub upon which a man stands, and at as great an elevation as his arms can reach, pours upon the naked head of the patient a steady but continued stream of cold or iced water, from a watering-pot without the rose. The stream is made to fall as nearly as possible upon one and the same spot. At first the elevation must be slight, for the shock is too violent if the stream be poured at once from the highest point." p. 412.

Dr. Smith says there is no degree of burning heat, no intensity of vascular action, and no violence of pain that can resist the continued application of this remedy. Usually in from ten to twenty minutes, the heat disappears, the skin becomes cold, the face pallid, the features shrunk; while the pulse is reduced to a mere thread, and the pain in the head entirely ceases. The cold dash being finished the patient is to be quickly wiped dry and put to bed; and it is to be repeated as often as the symptoms recur. Three or four repetitions will commonly suffice to subdue the most intense cerebral affection.

The author considers the cold dash as incomparably more efficacious in excitement of the brain than even iced lotions. It may be so, but not for the reason he gives, namely, that a fresh current of water, continually falling on the head, must produce a more powerful abstraction of caloric. It is true that such a current is applied, but still a more powerful abstraction of heat is not effected by it from the head, than by water in which ice is dissolving, because such water is always as low in temperature as 32°.. The cold dash, no doubt, acts peculiarly, from the mechanical force of the water, and from its continual and renewed application to the whole body, as it descends.

If it were in our power to address a question to the author of the work before us, we would ask, why he administered an emetic as the first remedy in the case of Dr. Dill. It may only be an apparent inconsistency on the part of Dr. Smith; but we are certainly not aware that he has any where in his chapter on the treatment of fever recommended a remedy of this kind.

With regard to the modification of treatment applicable to thoracic cases, the author says,

> "Fortunately, there is a remedy nearly as powerful and efficacious in intense thoracic affection, as bloodletting and the cold dash are in the cerebral. In the severe bronchial affection of fever, bloodletting is of little avail. It seems to have scarcely any control over the peculiar affection of the lining membrane of the bronchial tubes, or even over the inflammation of the substance of the lung, which so often accompanies the intense form of thoracic disease. It weakens the patient, without making a decided impression upon the disease. Laënnec states that the pathology of pneumonia could scarcely be learnt under his practice; for that he treated the disease, not by bloodletting, but by tartar emetic: and that all his patients recovered. I thought this one of the exaggerated statements in which medical writers sometimes delight to indulge; but it immediately occurred to me that this remedy might prove exceedingly efficacious in the bronchitis of fever. Its efficacy has surpassed my expectation. It seldom fails, if exhibited with promptitude and decision. The mode in which it is most efficiently administered, is in doses of two grains, dissolved in an ounce of water, and repeated every second, third, fourth, or sixth hour, according to the severity of the case." p. 415.

From the above extract, it would seem that Dr. Smith, in objecting, in a previous part of his treatise, to antimonial medicines, must have meant to discountenance their employment in the small doses ordinarily resorted to.

For the treatment of fever, as modified by abdominal affection, the author thinks no remedy has been discovered comparable to bloodletting and the cold dash in the cerebral, and tartar emetic in the thoracic cases. Bloodletting, early and duly employed, may prevent the inflammation of the mucous membrane of the intestines, but after it has formed, large bleedings are inadmissible, and small and repeated bleedings are not as useful as leeches. In severe cases, he thinks the abdomen should be covered with leeches, to be re-applied daily, until the pain and tenderness are gone, or, at least, have become slight. "The abdomen should be covered with a poultice as soon as the leeches fall off. Afterwards, the application of a linen rag, moistened constantly with the oleum terebinthinæ, keeps up the effect produced by the leeches, and, when the affection is slight, may supersede their use altogether."

When the purging is considerable, the author recommends five grains of the hydrargyrum cum cretâ, with five grains of Dover's powder, every night, or every night and morning. If this fail, a stronger opiate or an anodyne enema may be administered. In case of constipation, Dr. Smith is very guarded in the use of opening medicines. He conceives that active and irritating purgatives are highly injurious, and we agree with him on this point; but we were not prepared to expect that one or two drachms of castor oil would be recommended as the proper laxative. The laxative selected is well enough; but certainly, of our cold expressed oil, one or two drachms would not operate on an adult affected with the ordinary fever of this section of the United States. But we must recollect that Dr. Smith is treating of the common fever of London; and perhaps both the disease and the remedy in question may be very different in that metropolis, from what they are in this country.

Where copious discharges of blood alternate with constipation, the author thinks the mildest laxative must be administered with caution. Such a condition of the evacuations, we should think, would indicate ulceration of the intestines; and therefore the caution given is a very proper one. The laxative here recommended is castor oil, in the dose of a teaspoonful every six hours.

In the treatment of scarlatina, the author contends that bloodletting, cæteris paribus, may be used more freely than in ordinary fever. He is of this opinion, because he views, and we think justly, the inflammation in scarlatina to approach nearer to the nature of pure inflammation, than that which occurs in ordinary fever. After a decided impression has been made by general bleeding, the application of ten or twelve leeches to the throat is considered by the author as a sovereign remedy. "If scarlatina be treated in this manner on the second day, or sometimes even on the third, though it commence with exceedingly severe symptoms, yet the patient will be convalescent in the course of three or four days."

The author closes his treatise with a section on the treatment during convalescence, and an appendix containing tables.

The tables contain various numerical data, not, however, presented in as perspicuous a manner as we could have wished. We have compiled the following table from the numerical results given, in order that our readers may judge of the degree of success attained by the author, in conjunction with his colleague Dr. Tweedie, in the treatment of fever; for after all, this must be the great touchstone of the value of their principles and practice. The table embraces the results of four years.

Years.	Admissions.	Deaths.	Proportion of the deaths to the whole number admitted.
1825	588	104	1 in 5.6
1826	676	110	1 in 6.1
1827	676	86	1 in 7.8
1828	597	81	1 in 7.3
Total for four years.	2537	381	1 in 6.6 (average.)

Here the average result is seen to be one death in about six and a half cases; which does not differ, perhaps, from the ordinary results of practitioners, who treat fever on very different principles. But when we advert to the character of the patients received in the London fever hospital, being from the lower orders of society, and about one-third of these actually destitute, and also to the fact, that many were seen for the first time at late periods of the disease, it may be just to concede that the practice pursued has been attended with encouraging success.

We have been looking into the tabular results to see whether there were any facts in support of the doctrine of critical days. If we confine our view to the number of cases lost or cured on each day up to the seventeenth inclusive, it will be found that most deaths and cures occurred on the eleventh day. Now the eleventh is one of the critical days. The next greatest number of deaths occurred on the fourteenth, which is also a critical day. So far it would seem as if some little support was given to the doctrine.

It can hardly be necessary, in concluding our article, to say what is our opinion of Dr. Smith's book. Our readers can readily infer our sentiments from the large space which we have allotted to its analysis. It is truly a philosophical treatise, the performance of an accurate, patient, and industrious observer and thinker.

Art. VIII.—COMBE ON MENTAL DERANGEMENT.

Observations on Mental Derangement: being an Application of the principles of Phrenology to the elucidation of the causes, symptoms, nature, and treatment of Insanity. By Andrew Combe, M. D. *Edinburgh and London,* 1831.

Having in two consecutive numbers of this journal, (Vol. VIII.,) when reviewing Dr. Burrows' Commentaries on Insanity, entered into a detailed investigation of the nature of the disease and of the various stimulations to which the brain is subjected, and by which its functions are impeded and disturbed, we shall proceed at once to lay before our readers the somewhat peculiar basis on which the arguments and deductions of Dr. Combe rest in the work before us. In the articles just referred to we took occasion to complain of the vagueness of view entertained by Dr. Burrows, when he spoke of the aberrations of mind, and of the slighting and erroneous notices which he gave of phrenology, as furnishing a key to a knowledge of insanity and its numerous varieties. We adverted at that time to the work of Dr. Spurzheim on Insanity, as an attempt to show the manner in which this subject should be treated in connexion with, and directly deducible from, the phrenological system. The American editor of Mr. George Combe's Essays on Phrenology, published in this city, in an additional article to the work, partially carried out also the same views with a similar object. We have now the satisfaction of directing our readers to a more complete and extended series of 'observations' constituting the work by Dr. Combe.

It will not be amiss if we premise for the benefit of those who have not paid much attention to the modern views of the physiology of the brain, a short account of the data on which the phrenological system rests—that system which is the guide to Dr. Combe.

That the brain is the material instrument of thought, the seat of intellect and sentiment, is, we believe, at this time, a familiar proposition; but it is not perhaps so generally known that it is rather a congeries of organs than a single organ, and that each of the congeries has its separate and peculiar function, which gives the faculty of the mind. The plurality of the mental faculties, their unequal power, their diversity in different individuals, were facts often alluded to and at times more explicitly admitted by moral philosophers. The history of genius could be no otherwise explained than by an admission of this nature. In it we see a strong predominant faculty eager and intent on the gratification and display of its powers, without reference to remote results of profit or honour—while at the same time this wonderful energy is often marked by weakness of other faculties—a deficiency of those qualities of the mind largely participated in by other persons. Education exhibits farther confirmation of this principle, in the great difference of attainments by persons possessing equal opportunities for learning—and in the unequal success, in the same individual, with which several mental faculties are cultivated—although equal appliances were made to all. Several young persons, for example, shall take lessons in music, and all be ambitions of success—and yet the advancement of one will be exceedingly rapid; of another very moderate, while a third makes no progress at all. Let drawing be the subject of study, and the facility of attainment may be the very reverse of that exhibited in the case of music. We meet with individuals remarkable for their power of verbal memory—ability to rehearse with very little trouble after a few readings of or hearing the longest discourse; but who are utterly unfitted to feel or appreciate its peculiar excellencies, or to reason on the philosophy or bearing of the topics advanced in it. Others again destitute of this faculty, or possessing it in a very limited degree, and deficient in all copiousness of elocution, will often astonish us by the depth and cogency of their reasoning, and the great felicity and variety of analogical illustration. We find a distinguished geometrician, without any poetical imagination or ability to carry out in ratiocinative series a problem in moral or ethical philosophy. The poet again is often an exceedingly indifferent observer of things and judge of mankind. Now these various marked differences of mental manifestations among men are, not dependent upon accident, education, or both combined, or what is called the force of circumstances: they are the result of primary or innate aptitudes for particular pursuits in preference to others. No possible combination of circumstances can create a faculty—they can at most only modify it.

If the intellects of men are thus various, the difference in their disposition is not less so. Nor are we less struck with the little correspondence between any purely intellectual faculty or combination of such faculties and a particular sentiment or disposition. Genius is allied to the greatest goodness in one man, and to a thousand crimes in another. We deduce from this and other similar facts the consequence, that the manifestations of disposition, in a feeling of benevolence, veneration, friendship, &c. or of cruelty, deceit, &c. are independent of those other modifications of mind constituting intellect. The greatest share of learning and attainments of the most varied and surprising kind, give no active impulse to deeds of charity and philanthropy. Devotion in a good cause, sacrifices for parents, home, country, religion, are the result of strong internal impulses, not of conviction by elaborate processes of reasoning and skilful logic. The mode of display may be affected by the intelligence of the person—but the strong, active impulse to a particular train of feeling and corresponding action is innate, strengthened but not given by the schools.

Seeing that the brain, in its totality, is the material instrument for the performance of the mental faculties in their totality, and that these latter are numerous and diversified in their nature, intensity of action and aptitude for cultivation, we naturally ask whether particular portions of the brain are not necessary for the manifestations of particular faculties. Having satisfied ourselves by observation of human nature that there is a plurality of faculties of the mind, we should *à priori* infer plurality of organs, or portions for specific functions of the brain. The same cerebral mass, supposing it for a moment a unit, could not be competent to perform opposite functions—an excitement of the former as a whole must be attended with augmented action of all the latter, and its repose be accompanied by a suspension of these. Thus if the faculty for music were to depend upon the entire brain, the manifestation of the former would necessarily involve the active state of the latter. Of course all the other faculties possessed by the individual must be manifested at the moment of the musical effort with equal intensity, which we know is not the case. So far we might proceed in our reasonings and inductions by merely contemplating mental phenomena and the actions of men; but the direct material proof of the soundness of the doctrine would still be wanting. The general truth had been long felt and its importance acknowledged; but the world was without that specification of cerebral structure and minute observation of mental function by which the direct palpable origin of the latter could be referred to the former.

The merit of original observation and direct legitimate induction in this branch of physiology belongs to the late Dr. Gall. When yet at school he was struck with the great differences in the capacities of his companions: he saw one at the head of his class owing to his extremely tenacious memory; while he (Gall) was conscious that he better understood the subject of the lesson, but having a weaker memory could not with all his efforts appear to the same advantage in recitations as his companion. Being somewhat curious in the study of physiognomy, he set about observing the peculiarity of feature by which his rival of strong memory was distinguished. Gall found this youth to have unusually prominent eyes; and on looking around in the school and among his companions, he discovered that those who were remarkable for their facility in recitation, had also this same peculiarity. But when he afterwards had occasion to note, in the case of another of his companions, a strong and ready memory of places, but without this person having the full and prominent eye, he modified the inference which he had at first drawn regarding this character of eye as indicative of a retentive memory in general; he found that it was but of words in one's own or other languages, and did not by any means indicate a memory for places. The latter was evinced by a prominence at the lower part of the forehead just above the root of the nose. This discovery led him to see that mere physiognomy as commonly understood, that is, signs of intellect and disposition in the features of the face, could no longer guide him in his investigations. Other facts gradually taught him that the variations in external configuration corresponding with mental peculiarities, were of the skull and not of the bones of the face. Become a student of medicine and an anatomist, and made acquainted with the moulding of the skull on the brain and of the general functions of the latter, Gall now continued his observations with a view of detecting the correspondence between cerebral developement and the activity of mental manifestation. "Being physician to a Lunatic Asylum in Vienna, he had opportunities of which he availed himself of making observations on the insane. He visited prisons and resorted to schools, he was introduced to the courts of princes, to colleges, and the seats of justice, and wherever he heard of an individual distinguished in any particular way, either by remarkable endowment or deficiency, he observed and studied the developement of his head. In this manner by an almost imperceptible induction, he conceived himself warranted in believing, that particular mental powers are indicated by particular configurations of the head."* Gall began in 1796 to give courses of private lectures on the new science.

In 1800 Dr. Spurzheim commenced his labours along with Dr. Gall, and in that year assisted for the first time at one of the courses of lectures of the latter. While to Gall must be awarded the merit of originality, we cannot fail to admit that much of the philosophical character of the new system is due to the discriminative judgment of Spurzheim.

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* Phrenological Transactions.—Edinburgh 1824.

Without at this time entering into details which would lead us away from the main subject, it is sufficient to remark that the progress of physiological enquiry of late years has singularly confirmed the leading positions of the two German reformers. By comparative anatomy we learn that the difference in the brains of animals is correspondent with the difference in their instincts and propensities, and that the measure of the superiority of one class over another in regard to intelligence is found in the greater development of their brains upwards and forwards, that is, in the usual order of development from the medulla oblongata. By a comparison of idiots with intelligent persons, and by comparing these latter with each other and observing the correspondence between particular aptitudes and dispositions, and size and configuration of the brain as measured externally by the skull, physiologists are now generally agreed that in proportion to the fulness of the anterior part of the cerebral convolutions will be the manifestation of intellect, while a large growth of the back part and behind the ears indicates the strength of certain propensities of a more animal nature. To these two grander features and divisions we may add a third, which consists in the fulness of the upper region of the brain under the sagittal suture and beneath the parietals, and which is associated with an endowment of sentiments of benevolence, veneration, hope, firmness of purpose, cautiousness of character, &c.*

"The phrenologists consider man by himself, and also compare him with other animals. When the lower animals manifest the same propensities and feelings as those displayed by man, the faculties which produce them are held to be common to both. A faculty is admitted as primitive: 1. Which exists in one kind of animal, and not in another; 2. Which varies in the two sexes of the same species; 3. Which is not proportionate to the other faculties of the same individual; 4. Which does not manifest itself simultaneously with the other faculties; that is, which appears and disappears earlier or later in life than other faculties; 5. Which may act singly; 6. Which is propagated in a distinct manner from parents to children; and 7. Which may singly preserve its proper state of health or disease."

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* The reader, who is not conversant with the outlines of the Phrenological system, and of the location of the different organs, may soon obtain this kind of information by reference to the Elements of Phrenology, by George Combe, republished in this city by E. Littell. It is illustrated with diagrams of the human head on which is marked the numbers of the organs. Mr. Baker has also for sale the bust, or head in plaster, on which are more distinctly exhibited the various organs.

Carrying on their observations agreeably to these rules, phrenologists have arrived at the following conclusion:—The mental faculties are divided into two orders—of the *Feelings*, and the *Intellect*. The first are divided into two genera—1. *Propensities*. 2. *Sentiments*. The intellectual faculties are also divided into two genera—the *knowing*, and the *reflecting*. Each faculty has its material instrument or organ in the brain. The propensities do not form ideas; their sole function is to produce a feeling of a specific kind. These faculties are common to man and animals. They are—*Amativeness*, or propensity to physical love and sexual intercourse;—*philoprogenitiveness*, which produces the instinctive love of offspring in general;—*concentrativeness*, by which the mind maintains two or more powers in simultaneous or combined action, and determines the individual to fixedness of location and purpose;—*adhesiveness*, producing the instinctive tendency to attach one's self to surrounding objects, animate and inanimate—it disposes to friendship and society—it is stronger and the organ larger in women than in men;—*combativeness* produces active courage, and when energetic, the propensity to attack;—*destructiveness* produces the impulse, attended with desire, to destroy in general; when energetic, it gives a keen and impatient tone to the mind, and adds activity and force to the whole character: anger and rage are manifestations of it;—*constructiveness*, in man, inspires with the tendency to construct in general, and the particular direction in which it is exerted depends on the other predominant faculties of the individual:—in the lower animals, it appears to be directed, in a great measure, to one special object; in the bird to a particular form of nest, in the beaver to the special fashion of a hut,—these animals being deficient in the generalizing and directing powers conferred on man;—*acquisitiveness*, a faculty which produces the tendency to acquire, and the desire to possess in general, without reference to the uses to which the objects, when attained, may be applied—the idea of property is founded on it: avarice is the result of its predominating energy;—*secretiveness*, produces the instinctive tendency to conceal the thoughts, desires, and emotions of the mind, and to suppress their manifestations, till the understanding shall have decided on their propriety and probable consequences,—it thus enables the individual possessing it to add slyness, cunning or prudence to other means of defence.

The *Sentiments* or second genus of the *Feelings*, do not, any more than the propensities, form specific ideas—but are merely emotions of a certain kind, or tendencies to emotion. Several of them are common to man and the lower animals; others are peculiar to man. Those of the first variety are,—*self-esteem*, a name expressive of the nature of the faculty: its deficiency is attended with a want of confidence, and of a proper estimate of what is due to one's self: it is only when indulged in without restraint, and possessed in an inordinate degree, that it produces abuses, and displays itself in the shape of repulsive pride, wilfulness, arrogance, egotism; and makes up an ingredient in envy;—*love of approbation*, producing the love of the esteem of others in praise or approbation—a due endowment of it is indispensable to an amiable character; it may degenerate into puerile vanity, and feigned professions of respect and friendship; the organ is generally larger in women than in men;—*cautiousness*, produces the emotion of fear in general, and prompts its possessor to take care—the tendency of it is to make the individual in whom it is strong, hesitate before he acts, and, from apprehending danger, to trace consequences, that he may be assured of his safety;—*benevolence*, produces the desire of the happiness of others, and disposes to compassion and active benevolence—it communicates mildness and cheerfulness to the temper, and disposes to compassion, and active desire to benefit our species, and to view charitably the actions and character of others.

Of the sentiments proper to man, we meet, first, with *veneration*, which produces the sentiment of respect and reverence, and when directed to the Supreme Being, leads to adoration; it predisposes to religious feeling without determining the manner in which it ought to be directed, and contributes to our regard for antiquity, and our seniors;—*hope*, inspires with gay, fascinating, and delightful emotions, painting futurity fair and smiling as the regions of primeval bliss; it gilds and adorns every prospect with shades of enchanting excellence, while cautiousness hangs clouds and mists over distant objects, seen by the mind's eye;—*ideality* produces the feeling of exquisiteness and perfectibility, and delight in the 'beau ideal:' it is this faculty which inspires with exaggeration and enthusiasm, which prompts to embellishment and splendid conceptions. It is essential to the poet, orator, painter, and sculptor, and to all who cultivate the fine arts;—*wonder*, the sentiment of the marvellous, or *marvellousness*, a proneness to believe in mysterious incidents, tales of sorcery and witchcraft, &c;—*conscientiousness*, a faculty which produces the feeling of obligation, incumbency, right and wrong—justice is the result of this sentiment, acting in combination with the intellectual powers;—*firmness* produces determination, constancy, and perseverance: fortitude as distinguished from active courage, results from it;—it gives perseverance in the exercise and manifestations of the other faculties;—in excess it causes obstinacy. The first genus of the intellectual faculties, take cognizance of the existence and qualities of external objects, and form ideas: and correspond in some measure to the perceptive powers of the metaphysicians. These faculties are *individuality*, or as more recently termed *eventuality*, which gives the desire, accompanied with the ability, to know facts and things, without determining the kind of knowledge, and without any view to the purposes for which it may be subservient. *Form*, aids the mineralogist, portrait painter, and all persons engaged in the imitative arts;—it gives the power of distinguishing faces. *Size*, gives an intuitive facility in estimating the magnitudes of objects and of perceiving and judging of perspective. *Weight*, or *resistance*. *Colouring* gives a great natural power of perceiving colours, their shades, harmony, and discord; but the reflecting faculties adapt them to the purposes of painting. *Locality*, a faculty by which places once seen are well remembered and readily recognized; it conduces to the desire for travelling, and constitutes a chief element in the talent for topography, geography, astronomy, and landscape painting;—

it gives what is called *coup d'œil*, and judgment of the capabilities of ground. *Order* gives method in arranging objects, as they are physically related; but philosophical or logical inferences, the conception of systematising, and the idea of classification, are formed by the reflecting faculties. *Time*—the special faculty seems to be the power of judging of time, and of intervals in general: by giving the perception of measured cadence, it appears to be the chief source of pleasure in dancing; it is essential to music and versification. *Number*, gives the conception of number and its relations—arithmetic, algebra, and logarithms belong to it. *Tune* gives the perception of melody; but this is only one ingredient in a genius for music. *Language* enables us to acquire a knowledge of, and gives us the power of using artificial signs or words: in ordinary conversation, their language flows like a copious stream; in a speech, they pour out torrents. The second genus of the intellectual faculties or the reflecting ones, produce ideas of relation: they minister to the direction and gratification of all the other powers, and constitute what we call reason or reflection. First, *Comparison*, gives the power of perceiving resemblances, similitudes, and analogies; it explains one thing by comparing it with another, but does not discriminate the points on which they differ; and hence those in whom it is predominant, are, in general, more ready and plausible, than sound in their inferences. *Causality* furnishes the ideas of causation, as implying something more than mere juxta-position or sequence, and as forming an invisible bond of connexion between cause and effect: it gives deep penetration, and the perception of logical consequences in argument; the organ is large in persons who possess a natural genius for metaphysics, political economy, or similar sciences. *Wit*, is readily understood, yet difficult to define; it is a primitive faculty. *Imitation*, gives the power of imitation in general, as in mimicry, and when joined with secretiveness, it gives expression to the fine arts; it is indispensable to good actors, as well as to portrait painters, sculptors, and engravers.

The external surface of the skull corresponding with the anterior portion of the cranium, of which the organs giving the intellectual faculties consist, is of the os frontis; of course the intellect has a much smaller proportion of brain than the sentiments and propensities, even in the most favourably organized subjects. In many it bears an exceedingly small proportion to these latter, and we can in consequence readily conceive of their proneness to strong and exaggerated emotions, and wrong actions, running on even to insanity.

The above sketch of the phrenological system, though meagre and trite to some of our readers, was thought necessary to be laid before many others, for their correct understanding, or indeed any thing like tolerable appreciation of the merits of the work of Dr. Combe.

The introduction to this work chiefly consists of a history of the author's conversion to the tenets of Gall and Spurzheim, and of the opportunities which he enjoyed at Paris and elsewhere, of seeing them confirmed. Reference is made in it to the works of French physicians, such as of Georget, Falret, and Voisin, on insanity, written in the spirit of the new doctrines—and to the encomiums passed on them by Broussais, Adelon, Londe, Ucelli, and Vimont. Nor in this enumeration of the instances of favour with which they have been received, are the physicians of Philadelphia and Baltimore, and Professor Caldwell, of Transylvania University, forgotten.

The first chapter of Dr. Combe's observations consists of "*General Remarks on the Functions of the Brain and Nervous System*"—and he points out the general sameness of philosophic course pursued by Gall and C. Bell, in their investigations; the one satisfying us of the plurality of cerebral organs and corresponding functions in an apparently homogeneous mass; the other discovering the separate offices of nerves having a common origin, but which show few perceptible differences between them. After his allusion to the physiological proofs of plurality of cerebral organs, he instances pathology as equally abundant in demonstrative proof to the same effect. Partial idiocy,—partial injuries of the brain, which do not affect all the mental faculties,—insanity, affecting only one or two faculties,—cases of apoplexy, followed by loss of memory of names without apparent deficiency in other respects, and the occasional development of new powers by disease, are all at variance with the unity, and in harmony with the plurality, of cerebral organs."

In the second chapter under the head of "*Influence of cere-*

bral size on mental power," Dr. C. lays down the principle maintained by phrenologists, not that organic size is the *only*, but that it is ONE condition, *and a most important one in producing energy of function ;* and that hence, "WHERE ALL OTHER CONDITIONS ARE EQUAL, there increase of size will invariably indicate increased intensity of function." This law holds in regard to the most important organs of nutrition—the heart and bloodvessels, the lungs, the liver, kidneys, &c. The same is equally applicable in regard to the nerves or organs of sensation, which in structure and function approximate more closely to the brain. Animals possessed of acute sensation, have the corresponding nerves greatly predominant, over those of motion, while in those of great muscular power the reverse obtains. A specification of the proportion which the activity of each sense bears to the size of its nerve, leads us to the same conclusion. This chapter, from which our limits will not allow of our making extracts, abounds in physiological information of a very interesting nature.

Before we proceed to the third chapter in which the author at once enters on his subject, we shall go back a little to the first, in which some explanation is offered of the part which the basis of the brain performs. "The joint action of that part of the brain which takes cognizance of the impressions made upon the extremities of the nerves being requisite for sensation, or in other words, the brain being truly the seat of sensation, it happens, that if, by any internal cause, such as disease, that part of it which is in correspondence with a nerve be excited in the particular way in which it is acted upon by the natural stimulus from without, the same sensation will arise in the mind as if the external stimulus were actually present, and making its usual impression on the nervous filaments ; and a belief of its real existence will accordingly take place, unless the mind be informed by other faculties of the source of the error. Such, accordingly, is the origin of many odd feelings—of the cravings of hunger, without real want of food —of the creepings under the skin—of the voices constantly whispering into the ear—of the deceptions of sight—and of the all-pervading smells and tastes commonly complained of in madness, and sometimes also by persons in sound mind,—the only difference being that the former believe in the existence of an external cause to excite these sensations; and that the latter perceive their morbid origin, and refuse to obey their impulses."

The heading of the third chapter "*Mental Derangement is always symptomatic of Cerebral Disease,*" indicates the nature of its contents and the general drift of the author's arguments and reasoning. He very properly tells us that mental derangement, "is a disordered state of the functions of the brain, arising from some existing morbid action in that organ, which may or may not involve at the same time the functions and organs of the external senses, but which frequently exists without any such complication, and which must be remedied before the alienation can be removed." A few pages before this, Dr. C. holds the following language, expressive, we believe, of the real state of the case.

"Hitherto a singular and unfortunate distinction, for which there is no real ground, has been made by medical men, as well as by the vulgar, between the morbid derangements of the external and those of the internal faculties of the mind. The organs of external sense having been long known, every disturbance of their functions have been justly ascribed to an affection of their material organs, and the efforts of the physician have been directed to the discovery of the nature of the particular affection then existing; and by this the treatment has always been regulated. But when an internal faculty of feeling or of thinking has been deranged, instead of having followed the same rational course, and ascribed its aberration to an affection of its cerebral organ, we have hitherto generally contented ourselves with the simple but vague affirmation, that the mind was deranged, and have not cared to inquire what was the particular organic cause of the disturbance of function. And yet there is really no greater difference between the external and the internal faculties, as they are called, than between one external sense and another. All are equally powers of the mind, and differ only in having different functions to perform, and in each being connected with an apparatus fitted for its specific function. The mind requires an optic nerve with an external eye to enable it to see, because light is an external existence with which it must be connected; and it requires an internal cerebral organ to feel the sentiment of justice, because justice is not an external quality, but a mental or internal relation. The mind requires an external organ to enable it to hear, because the vibrations of the air are external existences with which it must be connected; and it requires only an internal organ to feel the sentiment of pity, because pity is not a quality of matter, but simply a mental state or relation. The organs of the five senses are therefore merely parts added to the other cerebral organs, in order to connect the faculties of Colour, Form, Tune, Size, Number, &c. with the external world; and the powers of Seeing, Hearing, Tasting, Touching, and Smelling, are neither more external to nor less intimate parts of the mind itself, than any other power, whether of thought or of feeling; and the well-being of the brain is alike necessary to the exercise of all. If, then, the manifestations of the mental faculties, in a state of health, depend on the healthy condition of their organs, external and internal, and a change in the state of the mind attends even the slightest alteration in that of the brain, it follows that a morbid condition ,of the organ of mind must be attended with morbid manifestations, or, in other words, with mental derangement, and that, without the previous removal of this organic cause, the mental health can never be re-established."

Dr. Combe shows himself to be of the physiological school of medicine, when he protests against naming the disease after the prominent symptom, without regard to the nature of the organic cause. He criticises with good reason the monstrously learned and artificial division of mental diseases made by the late Dr. Good. Contrasted with the notions of this latter writer, are the following views advanced by Dr. Combe.

" Phrenology has proved, and indeed it is scarely disputed, that the brain is an aggregate of many distinct organs, each manifesting a distinct mental power. It proves that one or more of these organs may be injured or diseased, and their functions impeded or altered, without necessarily affecting the remainder; and thus explains how a man may be insane on one feeling or faculty, and sound on all the rest; and, consequently, how, when a different organ is diseased, the faculty or feeling that is deranged may be different, and the prominent symptoms be different, and yet the disease itself remain exactly of the same nature. Inflammation affecting the eye disturbs *vision*, and, affecting the ear, disturbs *hearing*, because vision is the *function* of the one, and hearing is the *function* of the other; but still it is *inflammation* in both, and requires in both the same kind of treatment. Phrenology shows that, in like manner, morbid excitement of the cerebral organs of Combativeness and Destructiveness may produce raving, violence, and fury; and morbid excitement of the organ of Cautiousness produces fear, apprehension, despondency, and melancholy; not from any difference in the *kind* of excitement, but simply from the function of the one being to manifest the propensities first named, and from the function of the other being to manifest feeling of caution; and that hence both cases may require the same medical treatment for their removal, modified only by the difference of function; and, in so far, it affords a simple and consistent explanation of all the various forms which insanity assumes, and leaves us free to observe with care the nature of the organic derangement on which each depends."

The fourth chapter is on the "*predisposing causes of mental derangement.*" Rightly does the author say,

"An examination of the predisposing causes of any disease is necessary to enable us to understand its origin, nature, and treatment, including in the latter the means of its prevention. When accurately known they generally indicate the seat of the malady, as must at once be obvious on recollecting that a predisposition is a *local* condition or weakness of the part in which the morbid action is afterwards excited by the external or occasional cause; and unless the predisposing causes be found out, and removed, or modified, we can neither hope to prevent the accidental accession of the disease, nor expect to bring about a permanent cure."

Of the two kinds of predisposition, *hereditary* and *acquired*, the author speaks with some fulness. On the first he thus expresses himself:

"Authors who differ on every other point, agree in acknowledging that a condition of the brain, rendering it unusually susceptible of those diseases which are attended by mental derangement, is hereditary; and this truth is recognised by the vulgar (often the best judges in matters of observation), who speak of insanity being in the family or in blood; and it is practically acted upon even by Life Assurance Societies, who hold the occurrence of derangement in a family as an obstacle to insuring the life of an individual who is himself perfectly sane. By the hereditary transmission of insanity it is not meant that the actual malady is conveyed from parent to child, and that, after lying latent for some years, it will inevitably appear in the child, in whatever circumstances he may be placed. The meaning is simply, that some quality of brain is communicated to the offspring, rendering them more prone than other people to undergo cerebral disease, and thereby to become insane; and in consequence of which, causes will produce mental derangement in them, which, in any one not so predisposed, would have proved perfectly harmless.

"The testimony of almost universal experience establishes the hereditary transmission of a predisposition to mania as one of the most fruitful sources of that terrible disease. Pinel justly observes, that, when we remark in all places, and in successive generations, several members of certain families lapsing into insanity at the same period of life, without any adequate exciting cause, it becomes exceedingly difficult to dispute the influence of hereditary qualities; and it becomes, he adds, altogether impossible, when we know that the fact is incontestibly proved, not only by popular observation, but by notes regularly taken in numerous public and private establishments, and by collections of cases published in France, in England, and in Germany, from which, if required, numerous and conclusive examples might easily be quoted. But it may be sufficient to add, that the predisposition, like all other qualities of body and mind, becomes stronger in proportion to its previous duration and prevalence in the family, so that the disease attacks a greater number of the children where both parents are descended from tainted families, than where either parent is from a pure stock; and seemingly, for this reason, the hereditary predisposition is a more active cause of mental derangement in the higher classes, who intermarry more with each other, than in the lower, who have a wider choice. The prevalence of insanity and of mental imbecility among the royal families of Europe, and of the former among the Quakers, who, from their habitual moderation of passion, and quiet domestic lives, ought otherwise to be unusually exempted from its attacks, is to be ascribed to the same cause of too frequent intermarriage occasioning the wide transmission of hereditary taint. The accuracy of this remark is indeed manifest on comparing the returns from the higher and lower classes of society. In the Salpetrière at Paris, for instance, which is an hospital for paupers, out of 321 female lunatics, only 105 were ascertained to belong to families in which madness already existed; while, out of 264 of the higher classes, 150, or *more than one-half*, were in this predicament. The experience of Dr. Burrows is still more decisive, as he assures us that he clearly ascertained the existence of a hereditary predisposition in SIX-SEVENTHS of all his patients in private practice. These results deserve every attention on the part of the philanthropic and enlightened physician, through whom alone the public can be made acquainted with the magnitude of the evils resulting from acting in opposition to the principles on which they depend.

The operation of hereditary tendencies is well exhibited in the families of parents who have become insane from accidental causes without any previous predisposition. The children born *prior* to the existence of the disease in the parent remain as safe from its attack as those of parents who have never been affected; while those born *subsequent* to that time, and who may be thus supposed to have inherited the impaired constitution of their progenitor, are observed to be much more liable to its invasion than untainted children. And when madness does show itself in the offspring, it is generally at the same age and in the same form in which it appeared in the parent."

The causes of acquired predisposition to mental derangement are noticed as follows:

"The second form in which departure from the first condition of cerebral health produces liability to cerebral disease and insanity, is that in which, from an unusual severity of some of the diseases incidental to infancy, injudicious training, confinement to warm and ill-ventilated apartments, over-feeding, too early and too great straining of the mental powers, too ready gratification of all the passions, inclinations, and caprices of youth, and a variety of other similar causes, an unusual susceptibility has been impressed upon the nervous system, laying the foundation for the subsequent occurrence of cerebral and mental affections often from very trifling causes. The predisposition thus produced is by no means unfrequent; but as, when once existing, its mode of action is the same as that of the hereditary tendency, it is unnecessary to discuss it at any length. In youth it is often a chief cause of the appearance of hysteria, epilepsy, or some other form of common nervous disease. But, in mature age, particularly in persons of a peculiar temperament, with proneness to excessive and involuntary excitement of the nervous system, it more frequently leads to mental derangement. It is well known among medical men, that fevers, for example, in which the head has been much affected, wounds of the brain, indulgence in the abuse of wine or spirits, apoplexy, palsy, and a variety of other morbid states, occurring at that period of life, often leave the brain in a condition not of absolute disease, but of extreme susceptibility. Sometimes even a single fit of drunkenness will so far overstimulate cerebral action, as to throw the individual into violent madness of short duration; and it can easily be conceived, that a frequent repetition of the same stimulus, to a smaller extent, may at last produce a permanent state of irritation, which it may require only a slight cause to convert into disease. For the same reason, blows and injuries frequently leave behind them unusual susceptibility of impressions. Spiculæ of bone in the interior of the skull, keeping up a slight but constant irritation, operate in the same way, increase natural action, and are therefore not unfrequent predisposing causes of some form or other of cerebral and mental disease, and particularly of epilepsy and monomania. Certain temperaments also, as already said, predispose more than others to those forms of cerebral disease which are attended by insanity. The purely lymphatic are not often the victims of mental derangement. The sanguine and the nervous, both of whom are endowed with great acuteness and vivacity of feeling, or irritability of nervous fibre, are perhaps the least capable of withstanding the action of any continued exciting cause. But the subject of temperament is so closely connected with that of hereditary descent, that it is unnecessary to add any thing to what has been already said on the latter in the preceding pages."

Explanatory of one of the material causes of predisposition is a want of duly balanced proportion of all parts of the brain, so that some have an undue predominance over others:

"Wherever an individual possesses a set of faculties in much higher endowment than the rest, those will assume the predominance in activity as well as in energy. If they belong to the department of intellect, there will be intellectual activity, and a delight in their exercise; if they belong to the moral sentiments, there will be a tendency to, and a delight in, moral pursuits; and if they belong to the propensities, there will be a constant recurrence of, and delight in, selfish and debasing gratifications of passion and sensual appetite; accordingly, in society, we find the artist whose pictorial talents are naturally the strongest, seeking his chief delight in their constant exercise, however adverse the circumstances in which he may be placed."

Confirmatory of this view is the experience of Esquirol, who in his work "*On the Passions, considered as causes, &c. of Mental Alienation*," tells us:

"Almost all the insane committed to my care had offered some irregularities in their functions, in their *intellectual faculties, in their affections or feelings*, BEFORE becoming insane, and *that often from their earliest infancy*. Some had been distinguished for "*excessive pride*," (excessive predominance of the organ of Self-esteem); "others for *great irascibility*," (predominance of Combativeness and Destructiveness); "some for frequent *melancholy*," (predominance of Cautiousness); "others for a *ridiculous levity*," (defective Cautiousness, predominant Hope, and Love of Approbation); "some for a *desolating instability* for receiving instruction," (defective Firmness and Intellect); others for an *obstinate application* to whatever they undertook, (predominant Firmness); others again were *peevish, discontented; fearful, timid* and *irresolute*," (excessive predominance of Cautiousness, and defective Combativeness and Firmness). And, as if still more clearly to fix the cerebral seat of insanity, he goes on to say, that "most of them had suffered from nervous diseases—the women from convulsions or hysterical spasms, and the men from cramps, palpitations, or palsy; *with these primitive or acquired dispositions, nothing more was wanting, except some moral affection, to determine the explosion of furious mania, or the deepest melancholy.*"

Dr. Combe informs us that "as illustrations of this principle

Dr. Gall was in the habit of showing the skull of a man in whom the cerebellum was enormously large, and the chief feature of whose alienation was to believe himself to be the husband of six wives; and he also possessed the skull of a woman in whom the organ of Philoprogenitiveness was extremely large, and who in her ravings fancied herself pregnant with five children.

Still farther confirmation is furnished in a visit by Mr. G. Combe the celebrated phrenologist, to the Richmond Lunatic Asylum in Dublin, in April 1829. This gentleman, in the presence of Dr. Crawford, assistant physician, Mr. Grace, the Moral Governor, Major Edgeworth, Governor of the House of Industry, Dr. Cumming, assistant physician, and Dr. Mollan, examined a number of the patients, "and pointed out to these gentlemen the peculiarities of cerebral organization which each presented, and with which he expected the features of the lunacy would, as a general rule, be found to correspond. It was impossible to imagine a more conclusive experiment, for Dr. Crawford had previously written down the characteristic symptoms, and Mr. Combe had never seen or heard of any of the patients before they were ushered into the room, and therefore, as he wrote down his remarks in presence of the above named gentlemen *before* Dr. Crawford's notes were consulted, he of necessity drew his inferences entirely from their cerebral configuration; and yet, although it was the first time Mr. Combe had made the attempt, the results, as will presently be seen, harmonized completely with the principle I have been explaining."

Dr. Combe gives the tabular views of the development of the several organs as observed by Mr. Combe and noted down at the time, and opposite to these the remarks of Dr. Crawford containing the characteristic symptoms.

Contrasted with excessive endowment of the faculties, and excessive development of the organs, is the opposite condition of deficiency in these particulars, " in consequence of which the mental powers are unable to withstand any casual excitement or forced exertion into which they may be thrown. " This, as might be expected, is be to met with most frequently in persons whose deficiencies render them unfit for the stations which they occupy in society, and incapable of the duties committed to their charge. Conscious of incapacity, and yet unwilling to be borne down without an effort, they live in a continued turmoil and struggle, worried and oppressed by calls which they cannot answer, and cannot escape from, till at last some accident occurs to turn the balance and deprive them of reason. Men of strong ambition, but little talent, who labour and strive incessantly to make some improvement, or effect some discovery, or do something which shall bring them to distinction, and, under this impulse, goad on and tax their limited powers to the uttermost, place their cerebral organization on the brink of disease, and require only a trifling cause to induce mental alienation. So efficient, indeed, is defective developement as a predisposing condition, that, in many cases, idiocy arises from it alone, independent of any actual disease. Numerous examples are given by authors of full grown idiots, with brains no larger than those of infants, and in whom there was no other mark of disease to account for the imbecility. It even happens, that where the anterior lobe of the brain is merely sufficiently developed to raise the individual a little above palpable imbecility, he may pass through boyhood without remark or suspicion of his true state; and yet, on arriving at maturity, when all the faculties ought to be in their vigour, his friends will be surprised to find that the mind is in reality so limited as to be quite oppressed by the ordinary details of business, which, if persevered in, soon upset the little reason originally possessed. This kind of predisposition, however, as will be apparent from its nature, leads more frequently to idiocy and imbecility than to any of the forms of proper mania."

A third important condition of health, the infringement or neglect of which gives birth to a distinct class of predisposing causes, is the regular action of all the organs of the brain. This is conformable with the general laws of exercise.

" Keeping these principles in view, it will excite no surprise to find, that *non-exercise* of the brain and nervous system, or, in other words, inactivity of intellect and of feeling, is a very frequent predisposing cause of insanity, and of every form of nervous disease. For demonstrative evidence of this position, we have only to look at the numerous victims to be found among females of the middle and higher ranks, who have no call to exertion to gain the means of subsistence, and no objects of interest on which to expend and exercise their mental faculties, and who consequently sink into a state of mental sloth and nervous weakness, which not only deprives them of every enjoyment, but lays them open to suffering, both of mind and body, from the slightest causes.

If we look abroad upon society, we shall find innumerable examples of mental and nervous debility from this cause. When a person of some mental capacity is confined for a length of time to an unvarying round of employment, which affords neither scope nor stimulus for one half of his faculties, and, from want of education or society, has no external resources; his mental powers, for want of exercise to keep up due vitality in their cerebral organs, become blunted; his perceptions slow and dull, and he feels any unusual subjects of thought as disagreeable and painful intrusions. The intellect and feelings not being provided with interests external to themselves, must either become inactive and weak, or work upon themselves and become diseased. In the former case, the mind becomes apathetic, and possesses no ground of sympathy with its fellow creatures; in the latter, it becomes unduly sensitive, and shrinks within itself and its own limited circle, as its only protection against every trifling occurrence or mode of action which has not relation to itself. A desire to continue an unvaried round of life takes strong possession of the mind, because, to come forth into society requires an exertion of faculties which have been long dormant, which cannot awaken without pain, and which are felt to be feeble when called into action. In such a state, home and its immediate interests become not only the centre which they ought to be, but also the boundary of life; and the mind being originally constituted to embrace a much wider sphere, is thus shorn of its powers, deprived of numerous pleasures attending their exercise, the whole tone of mental and bodily health is lowered, and a total inaptitude for the business of life and the ordinary intercourse of society comes on, and often increases till it becomes a positive malady.

But let the situation of such a person be changed; bring him for instance, from the listlessness of retirement to the business and bustle of a town,—give him a variety of imperative employments,—and place him in society, so as to supply to his cerebral organs that extent of exercise which gives them health and vivacity of action,—and, in a few months, the change produced will be surprising. Health, animation, and acuteness, will take the place of former insipidity and dulness. In such an instance it would be absurd to suppose that it is the mind itself which becomes heavy and feeble, and again revives into energy by these changes in external circumstances; the effects arise entirely from changes in the state of the brain; for regular exercise conduces to its greater health and activity, and the mental manifestations and the bodily health have been improved solely by its improved condition."

Excess of mental activity is an infringement of the third condition of health, and as such predisposes to nervous and cerebral diseases.

The *fourth* and last condition, according to Dr. Combe, required for the health of the brain is a due supply of properly oxygenated blood. On so obvious a truth as this we deem it unnecessary to descant.

"Other predisposing causes are generally mentioned, such as age, sex, and profession; but as almost all of them may be resolved into extreme exercise of one or more of the cerebral organs, to the neglect of the rest, it is unnecessary to consider them here, at least in detail. For instance, the middle period of life is more fertile in the production of mental derangement, only because it is then that the brain is in its highest state of activity, and then the mind is most agitated by violent and tumultuous passions. It is then that love, fame, wealth, pride, &c. take possession of the mind, and, by their continued excitement, lead to cerebral disease. The female sex, again, predisposes to insanity, in common with all other diseases of the nervous system; because in the female the feelings are more acute, and external resources are more limited. And a sedentary and literary life predisposes to cerebral affections, and consequently to mania, for the same reason that it keeps the brain in an undue and permanent state of activity, convertible from the slightest cause into a state of morbid excitement."

The fifth chapter is on "exciting or occasional causes of disease." The force of exciting causes of insanity is of course relative, depending mainly on the extent of the hereditary or acquired predisposition to the disease. As pregnant with instruction we cannot however forbear from giving the following extracts as additional illustrations of the horrors of intemperance, the efforts to check which are made a matter of jest by some men who call themselves Christians and moralists, and whom the world regards as learned.

"Another cause of a similar nature may be adverted to, and, for the same reason, its action on the brain is not denied or doubted,—I allude to the abuse of intoxicating liquors. That wine and spirits in unusual quantity derange the mental manifestations, I need hardly stop to state; and this being the case it is easy to conceive that habitual excess may at last induce a permanent irregularity of action in the brain, amounting to disease; and, accordingly, nervous tremors, headachs, fits of excitement, often amounting to mental alienation, and delirium tremens, are observed to be common consequences of over-indulgence.

The remarkable increase of insanity among the lower orders in Great Britain, particularly in the manufacturing districts, has been pretty accurately traced, partly to the miseries, want, and anxiety, inseparable from the fluctuations to which they are exposed, and partly to the prevalence of dram-drinking, as the only means of relief within their reach. That it is not the mental distress alone which is the cause, is proved by finding the large majority of the patients to be among those who have been the most intemperate. Occasionally, however, it must be admitted, the excessive drinking is only the first symptom, and not the cause of the disease."

The case instanced by Dr. Combe from the Medico-Chirurgical Review, (No. 17, p. 181.) when he speaks of insanity, as caused by inanition and starvation, of a thief who "long accustomed to the abuse of spirits, became insane on being restricted to bread and water, and was cured by the administration of a modicum of brandy," is not coincident with general experience in such cases—nor even should delirium occur is ardent spirit in any form necessary for the cure—darkness and opium will suffice, where evacuations are not demanded.

In respect to the functional class of causes, the following remarks are not without interest:—

"It has been remarked by both Bayle and Broussais, and with much appearance of truth, that, when cerebral disease springs from irritation in remote organs, such as the stomach or liver, the mental delusions resulting from it have a direct relation to the functions of these organs. Bayle gives a number of cases in which inflammation and ulceration of the mucous membrane of the stomach and intestines seem to have preceded the mental affection, and given rise to the dread of poison, to the refusal of food, to melancholy, and even to suicide as the means of escaping from poison, as the features of the hallucination.* Broussais, on the other hand, after laying down as an undeniable principle, that whatever stimulates the brain may become a cause of madness, and calling attention to the fundamental truth, that the brain is placed between two orders of stimuli, those which come to it by the nerves of the external senses, and those which it receives from the nerves of the internal viscera, adds, that, next to local causes, the most influential are irritations proceeding from the stomach, liver, or duodenum. Indeed many persons contract, under the action of an exciting regimen, of poisons, or of irritating medicines, a chronic gastritis, which, after having kept them for some years in a hypochondriacal or nervous state, ends by throwing them into mental alienation. Others lose their reason in a much shorter time from the same cause. If the time is extremely short, and the gastritis acute, the delirium is no longer called *madness;* it then becomes phrenzy, or febrile delirium. But what is very remarkable, is, that frequently the *moral* causes, or those which act most directly upon the brain, only give rise to madness after having first developed and kept up gastric inflammation for some time, as if the encephalon required, in certain subjects, the reaction of the viscera to stimulate it to the necessary degree of irritation. This happens in many melancholics from nostalgia, unrequited love, loss of fortune, mortified pride, &c. who lose their reason only after having long suffered from gastro-enteritis and mental depression. And this ought not to excite surprise, as in many persons, moral emotions, although felt by the brain, produce at the time less effect on the organization of that viscus, than on that of the heart, lungs, or stomach.'*

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* Medico-Chirurgical Review, vol. viii. p. 121.

"The same principle of the brain being the centre of all sensation, and of its being more affected by the exaggerated than by the natural irritation transmitted to it from other organs, explains satisfactorily the production of hydrocephalus, convulsions, epilepsy, and other cerebral disorders by irritation, such as worms in the intestinal canal, by biliary or digestive derangement, or by teething. It is well known, that irritation in the stomach, caused by a surfeit or by dyspepsia, over-stimulates its nerves, and thereby affects the brain so much as to excite headach and incapacity for thinking; and therefore it is not to be wondered at that permanent irritation of the digestive organs should, in persons, strongly predisposed to insanity, often induce one or other of the forms of mental derangement."

The author quotes in this chapter, several instances to show that excitement of the particular phrenological functions does tend to derangement, and that the character of the latter, when produced, bears a distinct relation to the function performed by the organ or organs thus deranged. We regret not being able to give some of these cases, which would, we are sure, excite a marked interest in the minds of our readers.

The chapter on the "symptoms of mental derangement" is long, and abundant in details of much interest. The author analyses the nature of the symptoms as evidences of the disturbance of a particular faculty, with a care and success unusual in works on Insanity. He removes much of the mysticism and obscurity in which the subject has been needlessly involved by the dreams of spiritualism, and the vague notions of those who could only see in the mind a unit power, on the modifications of which, by education and accidental circumstances, were presumed to depend the differences in the capacity and dispositions of men. Dr. Combe cautions us against regarding any abstract act or feeling as an evidence of insanity. "*It is the prolonged departure without an adequate external cause, from the state of feeling and modes of thinking usual to the individual when in health, that is the true feature of disorder in the mind*, and the degree at which this disorder ought to be held as constituting *insanity*, is a question of another kind, on which we can scarcely hope for unanimity of sentiment and opinion." It is very properly said, that "in judging of a man's sanity, it is consequently as essential to know what his habitual manifestations were as what his present symptoms are."

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* Broussais, De la Folie, p. 337.

Qualifying somewhat the entireness of application of the above position is the fact, that mental alienation is sometimes merely an exaggeration, as it were, of the natural qualities of the individual. The author illustrates his meaning in the following manner.

"In treating of disproportionate development of the different parts of the brain, as predisposing to disease, in virtue of the tendency to inordinate action which all unusually developed parts possess, I took occasion to explain physiologically the process by which excessive healthy activity, long kept up and frequently recurring in the same organ, is gradually converted into morbid and involuntary irritation, attended with an exaggeration, both in degree and in duration, of the corresponding function as its characteristic sign; and it is important that the reader should keep the principle in mind, as it admits of very numerous and useful applications. It is from this cause that men of partial genius and unequal endowment of mental qualities, especially if possessed of an irritable constitution, are more prone to insanity than those who are fortunate enough to possess a more harmonious cerebral combination. The result, of course, varies according to the region in which the preponderance exists. If the preponderating organs belong to the anterior lobe, then we have intellectual genius as the mental feature in health, and *intellectual* disorder as the feature in disease. If they belong to the coronal region, then we have, in the healthy state, a straining after moral and religious excellence, or a *genius for morals*, so to speak, which opens up sources of delight and of feeling, which a less gifted person cannot comprehend; and, in disease, we have, perhaps, religious melancholy, or self-accusation. But if they belong to the basilar and posterior regions, then we have, in health, a vehemence and energy of passion and propensity which are truly formidable, constituting what may be termed a genius for mischief, jealousy, suspicion, violence, dissipation, anger, and all the lower passions; and, in disease, we have all the fury and recklessness of mania. Humiliating as it may be to human pride, we have thus one physiological condition in common, viz. a preponderance in size and activity of a portion of the brain, between the genius of a Newton, the devoted philanthropy of a Howard, and the grovelling ferocity of a Hare or a Bellingham; and Nature having formed the connexion, it becomes our duty, in the spirit of mutual charity and good sense, to open our eyes to its existence—to examine the common relation, in regard to the invasion of mental disease, which it establishes between the different classes of mankind—and not to act as if, by denying its influence, we could annihilate its power."

Doctor Combe passes in review many of the symptoms of insanity which are direct evidences of a highly excited and involved state of particular faculties. As serving to exhibit his views and at the same time the application of phrenology to a knowledge of insanity, we give the following rather long extract.

"The organ of *Amativeness* is established by abundant evidence, and many of the mental symptoms of insanity plainly consist in excitement, diminution, or perversion of its functions. If an individual previously remarkable for correctness of conduct, and moderation of passion, becomes conspicuous for unusual impetuosity of desire, gross obscenity, and contempt of decency; or shows an unwonted and unfounded aversion to the society of the opposite sex; or rushes headlong into the indulgence of morbid and unnatural appetites,—these constitute so many symptoms of an unhealthy condition of mind, all bearing reference to the faculty above named. *Adhesiveness*, which constitutes the bond of social and domestic life, is the fountain of another variety of mental symptoms. From excitement of its function, we see persons who, when in health, were no way remarkable for strong affection, displaying, as features of the insane state, a tenderness of attachment as husbands, a depth of filial devotion as sons, and an extent and disinterestedness of affection as lovers, which have no parallel except in romance, (Pinel.) From perverted and diminished function, we have, on the other hand, the common symptoms of dislike, aversion, or lukewarm indifference towards those formerly most loved. Pursuing the inquiry, we find in excitement of *Combativeness* the origin of many symptoms, such as the unceasing propensity to provoke, attack, and fight, the vindictive spirit of contradiction for the sake of quarrelling, and the incessant, mischievous activity mentioned by Pinel as characterizing the lunacy of a young man, who was naturally not only *gentle* and *peaceful*, but absolutely *timid*. And, as contrasts to this, we have numerous examples of men of distinguished courage manifesting, during insanity, a degree of timidity amounting to cowardice, both states equally proving the truth of our leading principle, that it is *the departure from the habitual mode of action of the faculty* which constitutes the sign of disease.

What is more common than to witness rage, violence, causeless revenge, a thirst for blood and maniacal fury, all which are symptoms traceable to excited *Destructiveness?* Or what difficulty is there in perceiving the relation of morbid cupidity and thirst for gain, to exalted activity of Acquisitiveness? There are few hospitals, indeed, which do not present one or more patients, whose eager appropriation to self of every thing within their reach, in utter opposition to their former character, is a direct symptom of their derangement. Frequently, however, the desire of property is impaired, and then the patient allows every thing to slip from his possession, but this also is as evidently a symptom of disordered function as the former. In the same light, in regard to the organ and faculty of *Secretiveness*, are to be viewed the unexampled cunning and power of deceit acquired by some patients on becoming insane; while others, naturally shy and reserved, display an openness and a disposition to tattle amounting to foolishness, which equally betoken the presence of disease. The assumption of fictitious dignities and despotic power, so common in the asylums of Europe, constitutes a class of symptoms directly emanating from excited *Self-Esteem*, as do also the deep self-abasement and humiliation arising from its diminished action. *Love of Approbation* is in like manner related to that class of symptoms consisting of inordinate vanity, towering ambition and passion for distinction, as well as that which is occasionally observed, marked by a total and unnatural indifference to public opinion. *Cautiousness* is also the prolific source of many symptoms. In a large proportion of the insane, the existence of the disease shows itself first by unusual depression, melancholy, timidity, suspicion and apprehension. The patient lives in the constant dread of some terrible calamity, or despairs of his present or eternal welfare; while occasionally natural prudence of character is exchanged for headlong rashness and inattention. Even *Benevolence* contributes its share of symptoms, and seems to be the source of that generous liberality, sometimes apparent in insanity, which gives away all to others, and reserves nothing for self but the delight of bestowing. That numerous symptoms of insanity spring from disorder of the functions of *Veneration*, *Wonder*, &c., I need not, after the cases recorded, when treating of the exciting causes, stop to prove. Morbid activity of *Hope* and *Ideality* is manifested in those among the insane, who live full of hope and gaiety in an imaginary world, where every thing is bright and beaming with excellence and perfection. Dr. Willis particularly mentions a patient of his who was impatient for the return of the paroxysm, from the happiness or perfect beatitude which it procured him; while it continued, he wrote poetry and prose with equal facility, and nothing in theory or in practice ever stopped him short. This state of feeling was a symptom of disease, and always disappeared with the return of health. Many other authors notice the possession of a powerful poetical imagination during insanity, when during health the opposite was the natural state of the mind. *Conscientiousness* again is often diseased, giving rise as symptoms to feelings of remorse for imaginary crimes; to self-condemnation in all its various forms; and to an unsurmountable scrupulosity in the daily occupation of life; causing a rigidity of adherence to thoughtless promises, which has been occasionally carried so far as to endanger life.

The symptoms arising from affections of the organs of the intellectual faculties are equally obvious. When the knowing organs, including those of Locality, Form, Size, and Colour, are diseased, the lunatics see objects distorted, displaced, and of different colours from what they really possess. Many lunatics, says Esquirol, see the letters lying over upon each other, so that they cannot read; and they mistake their relations for strangers. How many, he continues, mistake the *volume*, the *form*, and the *weight* of the bodies which they touch! The greater part become, in consequence, unfit for any sort of handywork or mechanical employment, and for music and writing. These aberrations, it may be observed, cannot be attributed to the mere external organ of sense, because the eyeball receives the luminous rays, and depicts the image on the retina as clearly and accurately as in health, and it is the mental faculties only that are unable to judge of the qualities of the image. If it was simply from an affection of the eye that the perception of form or of weight was imperfect, then the power of estimating these correctly by the touch ought to remain unimpaired, but the fact is the reverse. When the same faculties are inordinately excited by insanity, then a genius for mechanical pursuits is developed, which lasts only while the excitement continues, and, on ceasing, leaves the patient dull as before.

The organ of *Number* is sometimes separately diseased. A young Englishman is mentioned*, who had a nervous attack every other day, during which he saw and heard nothing, as was verified by experiment, and who yet occupied himself particularly with mathematics, arithmetic, and logarithms, and solved with ease new and difficult problems; this seems to arise from the organ of Number being active when other mental powers were lost. Generally, however, the power of calculating is diminished. The organ of *Tune* is often found diseased in lunatics, giving rise to very singular manifestations in persons who in health had no musical ear. Dr. Rush, Pinel, Esquirol, and many others, mention this fact. Dr. Rush often visited, with great pleasure, a young woman, on account of her exquisite singing and poetical imagination, although, before the invasion of insanity, she had *never* shewn any talent for music or for poetry. Diseased activity of the organ of *Language* is often met with in a "*babil intarissable*," volubility and fluency of utterance, which are not soon forgotten by the victim on whom they have been inflicted, while at other times words are either misapplied or very sparingly at command.

As to the state of the reflecting faculties in insanity, there is abundant evidence to show that they may be diseased, untouched, or excessively excited, each state giving rise to a diversity of symptoms. They may be suppressed, excited, or deranged. When the reflecting faculties are morbidly excited, it constitutes what Pinel calls Reasoning Insanity, or *Folie Raisonnante.* Foderé, whom no one will suspect of phrenological tendencies, says, "If the imagination offers for the most part nothing but disjointed sentences and extravagant actions, we are sometimes astonished at the elevation of ideas, purity of language, and *force of reasoning*, of some madmen during the paroxysm, *who in their ordinary health were very ordinary men.*" "Jean Huart," he adds, "tells us of a page, whose faculties *were up to the time of the attack very limited*, but who, in a fit of insanity, believing himself master of the empire, reasoned on the manner of governing it, in a way that astonished every body, and attracted many auditors less from curiosity than the desire of instruction;" but, without laying much stress upon this fact, I may refer the reader to the works of Mead, Willis, Haslam, Cox, Pinel, and Esquirol, all of whom take notice of the singular changes brought about by disease in the operation of the reflecting faculties.

From the preceding exposition of the symptoms of insanity, it will easily be understood how the excitement of fever sometimes restores the idiotic and the imbecile to reason and judgment. When the infirmity of mind depends on weakness and inaction of brain, the febrile paroxysm raises the tone and activity of the latter to the pitch required for the vigorous exercise of its functions, and so long as the stimulus lasts, the patient manifests talents and dispositions which disappear on its subsidence, and which stand in the same relation to his natural state, that delirium and extravagance occupy in regard to men of sound constitutions.

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* Journal Général de Médecine, vol. xl. p. 155.

Having thus traced the origin of all the mental symptoms to diminution, perversion, or exaltation of some one or more of the primitive faculties of the mind, it becomes an easy matter to discover the source of their very partial and limited range in one case, and of the very variable and multifarious phenomena and sudden transitions apparent in another. If, as sometimes happens, only one or two of the mental powers are implicated, the patient is insane only on feelings or ideas related to these, and remains sound as to the objects and functions of all the other faculties, constituting what is called Monomania. If a group of organs, such as those of the moral sentiments, be disordered, then the derangement is characterized by excited, diminished, or perverted moral feeling, constituting in one form what is called Religious Melancholy. Another variety, from the same cause, is melancholy from self-accusation, fear of eternal punishment, and morbid scrupulosity. If the moral and religious feelings are *perverted*, then blasphemy and imprecations take the place of the devotional and benevolent tendencies previously existing. If, on the other, the morbid group belong to the propensities, then passion, cruelty, suspicion, unceasing mischief, or furious mania, combined with a considerable amount of sound reason and moral sense, are to be observed; in which state, the patient, conscious of the danger to which others are exposed from the ungovernableness of his passions, and of the impossibility of resistance to their impulses on his own part, retains sense and feeling enough to warn the bystander to provide for his safety by flight.

Lastly, if all the organs of the brain are disordered, all the powers of the mind suffer. Natural feeling, moral restraint, and sound judgment are all upset, and the patient raves violence, blasphemy, and folly by turns; or passes, in the course of a few hours, through all the phases of outward character, from the tumultuous agitation of infuriated rage to the deepest dejection of melancholy; and it is in such circumstances that the remark of Esquirol, that mania, monomania, melancholy, and dementia, succeed and alternate with each other, the disease itself remaining the same, is especially exemplified."

On monomania we meet with these remarks :

"Where, as in monomania, only one or two faculties are disordered, the rest remaining sound, the patient is at first conscious of the aberration of feeling or of thought which it produces, and employs all his powers to suppress and conceal the slightest appearance of its existence. Frequently he accomplishes this so successfully, that he goes on for months unsuspected, except by very close observers, and then, under some casual excitement, losing command of himself, gives full and sudden vent to his delusion in an act of manifest insanity. This often happens in monomania, and, as the act itself may either be a mere explosion of folly, of harmless passion, or of unaccountable apprehension and hatred, or be a direct infraction of the laws of morality, such as the perpetration of murder without an external motive, it behoves us to be extremely on our guard against condemning as a crime, what is in truth a *symptom* of insanity, and not to add the cruelty and ignominy of condemnation to the already severe visitations of disease. Dr. Marechal mentions a case in point to which I may refer.* A lady, unhappily married, nursed her infant for three months, when she became sad and taciturn, and was often in tears. One day sitting near the fire, she exclaimed with eagerness and agony, "*Snatch the child from me, or I will throw it into the flames,*" and then confessed that for a long time she had been struggling against an almost irresistible impulse to destroy the child, and that, on approaching a window or fire, the desire always returned. The infant was taken from her; she became melancholy, and, lamenting her unhappy propensity, attempted suicide. She recovered, but three years afterwards had a relapse, and in the second month of nursing was seized with the same unnatural propensity, and, after resisting its force for some time, again parted with the child, and, horrified at her own condition, repeatedly attempted suicide. Many instances have occurred to show, that although, as in this case, the desire to destroy the infant was almost the first symptom of insanity, yet as reason seemed in other respects entire, the mother would have been executed as a criminal, had the act been accomplished, instead of being submitted to medical treatment to be restored to health."

The "*duration, periodicity and symptomatic forms of mental derangement*" constitute the subjects of the seventh chapter. The copiousness of our extracts already made precludes us from more than barely noticing this chapter.

The "*appearances on dissection after mental derangement*" are treated of in the next or eighth chapter. Dr. Combe expresses his belief that in insane persons after death we shall generally find unequivocal traces of cerebral disease, in the various forms of changes of colour, of consistence, or alterations of structure." He cites the experience of Mr. Davidson, house surgeon to the Lancaster County Lunatic Asylum, which contains upwards of four hundred patients, to the same effect. Mr. Davidson has examined with much care the bodies of more than two hundred patients who have died in the hospital since his appointment, and the result is that he has scarcely met with a single instance in which traces of disease in the brain or its membranes were not evident, even when the lunacy was recent, and the patient died of a different disease. The pia mater and cortical substance are the parts he has found more frequently in a morbid state.

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* Archives Générales de Médecine, vol. xii.

In reply to the argument against the connexion between cerebral alteration and mental aberration, consisting in the alleged fact of persons retaining the possession of their intellects, in whom after death the brain was found disorganized, the author reasons in the following very pertinent strain.

> "There is in reality a wide difference between the small portion of intellect called into action, either in the retirement of the habitual invalid, or in the limited sphere of a sick room, and that required and displayed by the same person when in health, in the wider field of public and private duties; and it is high time to make the distinction in practice, particularly where important conclusions necessarily depend on the accuracy with which our observations are made. Nothing is more common than to hear it affirmed of a patient, who returns a rational answer to a simple question, that his mind is entirely unimpaired; and nevertheless, to find, on inquiry, that he is altogether incapable of following a chain of reasoning, or of comprehending a line of detail, to which, when in health, he would have been much more than adequate; or, in other words, that his mind, though not in the usual sense deranged, *is greatly impaired in power.* Let any one, who denies this, attempt to think intently, or to study profitably any thing requiring a continued exercise of attention, while he is either recovering from acute disease, suffering from an ordinary fit of bile, or even walking about as a confirmed invalid, and he will soon be convinced of his error. Nothing is more usual, in ordinary life, than to see a person a little unwell lay down his book or his pen from *consciousness of incapacity, or perhaps ask for a novel*

or volume of tales to pass the time, as he cannot think or attend to any thing serious. This diminution of mental vigour is met with every day in persons confined even with a common cold, and yet the physician would never scruple to certify, if called upon, that in such circumstances A B was in perfect possession of all his faculties, when, in fact, he was all the time giving demonstrative proof that, although not raving or absolutely silly, his thinking powers were *impaired*, and palpably inadequate to their usual efforts.

"Another important circumstance is often overlooked in reasoning from such cases. The state of the intellect is alone attended to, and held to represent the mind, the condition of the propensities and moral faculties being altogether disregarded, when in reality they are as much parts of the mind as the intellect itself, and the portion of the brain dedicated by the Creator to their manifestations is much larger than that allotted to the intellect. The obvious consequence of this last arrangement being, that the parts of the brain belonging to the feelings may be diseased or injured, without necessarily impairing the intellect, the organs of which remain sound and entire. Greater accuracy in making observations, and greater caution in reasoning from them, are imperatively required, before the conclusions arrived at can be made available, either to substantiate or to set aside the opinions generally prevalent on the subject of the mind, and its connexion with the brain."

"*What are the proximate causes of mental derangement?*" is the problem proposed as the subject of the ninth chapter. The author does not so much profess to give the solution as to draw attention towards its elucidation; "and to show that the proximate cause is not the same in all cases; but differs according to the individual constitution and to the agency of the circumstances which have called the disease into existence." In this opinion he is sustained by the authority of Esquirol and other experienced writers on insanity.

The work before us concludes with a chapter on the "*prevention and treatment of mental derangement.*" The author excuses himself for not giving greater extension to this subject, owing to his having already transgressed the limits originally proposed for his labours—We must make an apology to our readers on similar grounds, for not being able to lay before them as fully as we could desire the views and directions inculcated by the author. Perhaps our regret is diminished by finding that there is not so much actually new as useful in this chapter. The following remarks on the use of warm and tepid bathing and the shower bath are worthy of attention. We do not believe that sufficient attention is paid to preserving the entireness of cutaneous function in insanity. Dr. Combe is speaking of Esquirol's treatment by laxatives one day and the warm bath the next, and continues thus,

"When a dry state of the skin, restlessness, and violence are present, the same author says that great benefit will be derived from the warm bath, taking care that it be not made too hot. In the Salpetrière he orders it to be continued about two hours, and sometimes so long as eight hours daily, and never finds it induce debility when forty-eight hours are allowed to elapse before its repetition. Cold applications to the head, while the patient is in the bath, are considered useful. In his practice, the cold bathing is rarely resorted to in any form.

"I have never seen the warm bath carried to the same extent elsewhere, and therefore cannot offer an opinion of its propriety or safety; but I have witnessed its good effects, after due depletion, so often on a more limited scale, that I consider it a remedy of great power, and it is now pretty much employed in our public asylums, so that, before long, we may expect to be in possession of fixed rules for guiding us with more precision to the states in which it is applicable. As a preventive, and in procuring sleep, where narcotics cannot be given, it is very valuable. Mr. Davidson informed me, that in the Lancaster Asylum, a bath at 85° was used twice a week, as a means of cleanliness, for all the patients indiscriminately, and with excellent effect; and that, as a remedial agent, the cold or tepid shower-bath was in common use, after local depletion, apparently in the description of cases we are now considering, and that its effects in diminishing increased action, reducing heat and restlessness, and soothing the patient, were very marked; and unattended by any bad consequences, either of reaction or any thing else. From its utility and safety in such circumstances, it is repeated wherever the indications reappear, occasionally so often as three or four times in twenty-four hours."

The following observations in respect to food, are worthy of attention and remembrance.

"The cerebral state which gives rise to the asthenic forms of insanity, seems to be allied to that condition of the brain in fever, in which, after the period of excitement is past, wandering and delirium still continue from the irritability of weakness, and are removed by the cautious administration of wine, nourishing food, and opiates, which, if given earlier, would have increased the aberration. This affinity is still further exemplified by the fact, that after depletion has been carried to its fullest admissible extent in mania, with increased action, the alienation often continues unaltered for several months, and is only exasperated by perseverance in the same treatment, while it is alleviated or cured by nourishment, tonics, exercise, and mental occupation properly regulated. Deprivation of a due supply of food to the patients in this state is followed by decided aggravation of the insanity, and often by its conversion into incurable fatuity. During the famine at the early part of the French Revolution, this result was common in the asylums of Bicètre and the Salpetrière; and Esquirol even says, that nothing contributes so much to the nocturnal quiet of a lunatic establishment as allowing meat and drink during the night to such patients as really desire them. And hence, as the mass of patients in confinement are beyond the active stage of the disease, the liberal allowance of food now ordered by the standing rules of almost all asylums."

When speaking of the moral treatment, the author thus expresses himself:

"In prescribing for the morbid conditions of other parts of the body, we find it necessary to regulate the functions which they perform in such a way as to assist, or at least not to interfere with, the beneficial action of the remedies employed. If the lungs are affected, we forbid exercise, loud speaking, or playing on wind-instruments; because all these tend to accelerate *respiration*, and this necessarily involves increased aotion in them. If the eye is inflamed, we regulate the admission of light and the exercise of *vision* according to the same rules. In affections of the brain, therefore, whether of an acute or less active kind, we ought, in ordinary consistency, to follow out the same practice; and in the former to withdraw all stimuli, and in the latter, to modify their agency, so as to secure beneficial results. When, for instance, we meet with a lunatic suffering from excitement of the organ of Cautiousness, as manifested by gloomy, desponding, and harassing anticipations of future evil, we ought to be scrupulous in avoiding every thing calculated to act further upon that particular mental function, as this would inevitably rouse it to higher activity and make matters worse; or, when we see an individual suffering from morbid exaltation of Veneration, and a prey to the mental symptoms by which it is characterized, we ought carefully to withdraw him from the presence of every object which addresses itself to that faculty till the disease is mitigated, and its renewed exercise becomes requisite to restore it to health. This, accordingly, forms the first grand principle in the moral treatment of the insane, and it is one for the application of which Phrenology affords many facilities. By unfolding to us what the primitive powers of the mind are, and the objects and relations connected with each; and further, by enabling us to distinguish with accuracy the natural dispositions and talents of the patient, or the proportionate strength in which every individual faculty is possessed, Phrenology gives us a power of acting, and of adapting external circumstances to the exigencies of the case, with a precision, confidence, and consistency, which it is impossible to obtain in any other way. We have already seen, that, in the great majority of cases, the madness takes its character from the predominant organization and mental endowment, and that many lunatics possess the power of concealment and deceit to a degree that frequently defies scrutiny. Now, it gives the physician immense command over such patients, when by the examination of the head he can, as generally happens, discover the natural dispositions so accurately as to know what are the probable points of attack in the mental constitution; when to be on his guard against counterfeit and subterfuge; and what class of motives or line of mental discipline is likely to be attended with the best effects in subduing excitement, and promoting the return of reason. In enabling him to detect the machinations of the cunning, and the devices of the suicide, it is also of signal advantage, as well as in adapting the required precautions to the character on which they are intended to operate. When he finds a large endowment of Secretiveness and Cautiousness, combined with predominant animal organs, good intellect, and only moderate *moral*, he will at once feel that, however correct, plausible, and rational his patient may seem to be, he is in reality a dangerous neighbour, and in a state demanding the closest watching and superintendence."

A recommendation to treat the insane agreeably to the same code of morals, by attention to candour and truth, which is presumed to regulate us in our intercourse with the world generally, may excite some surprise, but is essentially sound in its tendency. We give insertion to the entire passage, the more willingly, because it conveys an eulogium, and we doubt not a well merited one, on the "Connecticut Retreat."

"The more nearly we can approximate our treatment of the insane to that of reasonable beings, the greater will be our success. We ought never to deceive them, to do a single act, or utter a single expression to them, which we would not do supposing them to be perfectly sane and able to judge of their own state, and of the propriety of our conduct towards them in the circumstances. One piece of deceit, however harmless, will forfeit confidence as soon as detected, and none are more acute in its detection than the insane. It is, besides, not only bad in itself, but hostile to moral discipline, as it authorises deceit in others. Consistency and integrity may fail for the moment to soothe the patient, where deceit might for the moment succeed; but the purchase of present quiet on such terms is too injurious to both patient and physician to render it advisable; and therefore it ought not to be made. Those who wish to preserve and increase their influence over the lunatic, will be careful never to promise what they never intend to perform, and never to fail when once they have given their word. They will also habitually consult his feelings and show an interest in his comfort, happiness and recovery; while they will devote themselves to the removal of every offending cause, and to procuring every enjoyment and interest of society, occupation, and exercise which the patient can appreciate. So far as can be judged from Captain Hall's account of the Connecticut Retreat, already alluded to as remarkable for its superiority in effecting cures, the system pursued by Dr. Todd with such success is marked in every step by kindness, openness, and candour; and every effort is made to gain the sympathies of the inmates, and to connect them by feeling and affection with society. For this purpose, a committee of visitors, including ladies, make frequent and long visits, in the spirit, not of mere form and ceremony, but of active kindness and humanity, and the advantages resulting from such intercourse have proved to be incalculably great. The visitors must, of course, be persons of much sense, good nature, information, and tact, and have some general idea of how to conduct themselves, but, with these qualifications, their intercourse cannot fail to be grateful and salutary. This mode of addressing the feelings of the insane is, in fact, the most direct, and therefore the most powerful way of calling the mental functions and organs into healthy action. From the shyness and suspicion so frequently accompanying insanity, it may be more difficult to obtain access to the sympathies of the lunatic, and to become the object of his better feelings; but the distance and distrust at first shown often give way gradually to *sustained* kindness, perfect candour, and imperturbable equanimity, under provocation. For the patient, finding by experience that he has now met with a friend who will remain steady in his benevolent efforts for his comfort, however little return he may make for the kindness shown him, and feeling secure from the attack of caprice and retaliation, at last gives way, and derives consolation, hope, and strength of mind from free communion, not only with his physician, but with such discreet, intelligent, and benevolent friends as the latter may see advisable to admit to his presence."

Due exercise and occupation are very properly dwelt on with some emphasis by Dr. Combe.

"It is pleasing indeed to see from the late annual reports of some of our public institutions, how much anxiety is now shown on this point, both by the physicians and directors. In several of the reports of the Dundee Asylum, for example, the subject is recurred to with an earnestness betokening a deep sense of its importance, and the erection of sheds and workshops, in which the patients may exercise their trades, is strongly recommended, and enforced by the success of similar measures in some of the best continental and British establishments. To secure the same advantages for patients of the upper classes, who are unaccustomed to labour, a bowling-green has already been laid down, and a billiard-table is speedily to be added. In like manner, at James Murray's Royal Asylum, at Perth, in the Lancaster County Asylum, and in many others, efforts are made to employ the patients in husbandry, gardening, and other exercises, and with the best effects; although none of these hospitals have yet been provided with means fully adequate to the end in view. In the Lancaster Asylum, the patients of the lower classes are required to make their own beds, and keep their rooms clean, and to do such other duties as conduce to general cleanliness and comfort. This practice is decidedly beneficial, both as employing them, and as giving them a pleasing sense of their being useful, and not mere drones in society. The perfect order and neatness which reign in every department would do credit to the best regulated family."

We cannot forbear from making another extract on this very important topic. Perchance it may serve as a hint to some of our friends near home.

"After the preceding observations were written, I met with a strong and gratifying corroboration of their accuracy in the Tenth Report of the Directors of the Dundee Asylum, being that for the year ending in June 1830, and for which I am indebted to the kindness of a friend, who takes an interest in the subject. The new superintendent, "Mr. Mackintosh," says the Report, "immediately upon his appointment to the charge of the Dundee Asylum, anxious to qualify himself in the most perfect manner for the discharge of his duties, set out on a tour of inspection of all the most celebrated Lunatic Hospitals in Britain, and also of the Salpetrière at Paris, and the Royal Lunatic Asylum, and Dr. Esquirol's private establishment at Charenton. In all of these he found employment more or less resorted to as one of the most powerful efficients towards cure; but, in one establishment in particular, *the beneficial effects* *arising from it have been such, as to render restraint and confinement seldom, if ever, necessary, and the patients enjoy a freedom scarcely inferior to that which a person enjoys who is under no control.* During their lucid intervals, they are permitted to attend their respective places of worship on Sundays, to go into the town occasionally on the other days of the week, and to take short excursions into the neighbouring country, sometimes accompanied by an attendant, and sometimes not; and although opportunities are thus afforded them of effecting a temporary escape, yet but one attempt of the kind has as yet been made, and every individual after his walk or ride returns to the asylum as to the home of his choice. This state of *rational quiet and considerate composure* is to be attributed, in a very great degree, to the *useful occupations or healthy amusements* in which the patients are *regularly* and *systematically* engaged; which, by calling off the thoughts from the objects or associations, which would otherwise disturb them by day, contribute to induce during the night tranquil repose and refreshing sleep. With these facts before their eyes, the Directors feel it to be a duty imperative upon them to fall upon some plan, without delay, by which the labouring class of patients in the institution, under their care, may be employed in those labours and trades to which they were accustomed previous to their confinement." It is delightful to see talent and philanthropy thus going hand in hand, and adopting the dictates of enlightened experience."

The copiousness of our extracts from Dr. Combe's work is the best evidence we can give of our opinion of its general merits. The rigid critic might find wherewithal to censure: for ourselves, we think that the importance of the subject, the laudable efforts to present it in a more philosophical shape, and to illustrate it by more clear and demonstrative evidence than we have heretofore been favoured with, are valid claims on the reader's attention and approbation of this work of Dr. Combe.

ART. IX.—CRUVEILHIER'S PATHOLOGICAL ANATOMY.

Anatomie Pathologique du Corps Humain, ou Descriptions, avec figures lithographiées et coloriées, des diverses alterations morbides dont le Corps Humain est susceptible. Par J. CRUVEILHIER, *Professeur d'Anatomie, &c. &c.*

Pathological Anatomy of the Human Body; or Descriptions, with coloured Lithographic Plates, of the different morbid alterations of which the Human Body is susceptible. By J. CRUVEILHIER, *Professor of Anatomy to the Faculty of Medicine of Paris, physician to the Maison Royale de Santé, Knight of the Legion of Honour, Member of the Royal Academy of Medicine, perpetual President of the Anatomical Society, &c. Livraisons* 1 . . . 9. *Paris,* 1830. 1831.

The beautiful invention of lithography has, we presume, suggested itself to many as a means peculiarly well adapted to the representation of the perishable and interesting materials of morbid anatomy. Such extraordinary beauty, facility and cheapness being afforded by this process for a great variety of objects only valuable to taste and fancy, it seemed a thousand pities that they should not be made to assist in the accumulation, preservation, and diffusion of the facts which compose this most invaluable science. If there be any peculiar importance to mankind in such a branch of knowledge as that which belongs to our profession; if the discrimination and cure of diseases be a more useful study than the forms of animals and plants, the features of distinguished men, or the comic scenes of domestic life, which we have seen so showily represented by means of the painted stone, there can certainly be no difference of opinion as regards the value of this agreeable art, when applied to those inquiries upon which is based nearly all that is positive and certain in the doctrines of medicine.

The fleeting nature of the materials from which the anatomical pathologist draws his deductions, lends a vast additional weight to these considerations. Many facts of great importance rest upon *colour;* a circumstance in which a few hours produce the most destructive changes; whether the objects in question be left to themselves, exposed to the natural causes of decay and dissolution, or the attempt be made to preserve them by artificial processes. It matters little whether an inflamed tissue be dried into an opake, reddish black mass, or bleached to the last degree of delicacy by maceration in alcohol; the effect is equally remote from the real appearances of nature. Again, the *swellings* of diseased parts are marked by soft outlines which are immediately and entirely disfigured, either by the rigidity of desiccation, or the irregular contractions, coagulations and curvatures, undergone by a specimen in an anatomical jar. Similarly are we situated with regard to *density*, and some other qualities of morbid textures; while the preservation of the fluids is not even attempted.

Under these circumstances, the next and most obvious resource of the observer, is the pencil and the burin; and we have every reason to hope that, as well executed drawings increase, connected with accurate details of the cases in which the morbid disorganization occurred, a real advancement in science will be the result. By collecting drawings, made under these circumstances, something of the same effect is produced, which we witness so happily exhibited by collections in natural history. Well selected collections of natural objects are known to form the most powerful as well as agreeable mode of promoting and diffusing a knowledge of these branches of learning; studious men acquiring more by a single comparison, than by the prolonged but separate research of hours or days. When a numerous set of well characterised specimens is assembled, placed side by side, and arranged so as to illustrate itself, such a great mechanical advantage is gained for the extension of knowledge, as almost to compensate for the deficiencies of intellect. To augment a science so well exemplified and distributed, requires but a moderate exertion of the understanding; and the individual engaged in other pursuits, or who, from want of inclination, or even of natural power, is little inclined to expend much of his industry in the study of these subjects, may, if he obtain an unknown specimen which excites his curiosity, discover its proper analogies and distinctions almost at a glance. These advantages are certainly possessed in an equal degree by coloured representations of nature, provided they are executed in such a manner as to command confidence in their accuracy; and to this is further added, by the arts of coloured engraving and lithography, all the incalculable benefit of number and diffusion.

The success of this undertaking, if not altogether created, is at least mainly controlled by the accuracy and distinctness with which the figures are executed. In this respect, we should not hesitate to say the work before us stands unrivalled. It is indeed a permanent monument of fame to the author, the dissectors, the draughtsmen, the lithographers, by whose joint exertions it was produced, and to the liberal bookseller, M. Baillére, by whose honourable enterprize the attempt was furnished with its pecuniary means. It bears rather the aspect, on the part of the latter individual, of a generous sacrifice to science, than of an ordinary business operation. No expense has been spared, where expense could promote the scientific object of the work. The most beautiful coloured lithography is lavished to exhibit the appearances of a diseased stomach or spleen; and where the design is to represent the glistening cholesterine of the brain, paints possessing the metallic lustre are obtained, to to be impressed on paper by "the faithful stone." On the other hand, amid all this abundant display, there is nothing like the ostentatious extravagance we witness in some other works. The whole seems to have been exclusively directed by the spirit of science—we have no ridiculously enormous width of blank paper, which has been justly compared to a rivulet of text meandering through a meadow of margin; no diminutive figure occupying, as if ashamed of itself, the centre of an immense sheet otherwise unoccupied, and no dashing outlay of brush and graver upon incidentals, back grounds, and accessories. The surface of the plates is judiciously filled, not crowded, with useful and intelligible figures; and the text is fairly proportioned to the size of the volume and its illustrations. Where any of the figures are of a nature to be well represented by shading alone, shading only is employed, the expense of colours being deferred, by a just economy, to moments when it can be useful; and the effect thus produced is more pleasing to the eye, at least to ours, than that afforded by many productions we have seen, where the most indifferent objects are pourtrayed in a display of tints which only serves to draw off the attention from what they contain that is really instructive. Nor is the merit of the artists inferior to the style and getting up of the volume. The plain lithographs certainly exceed in beauty, in our opinion, the engravings of Dr. Baillie; while the coloured specimens, forming about two thirds of the whole, by far surpass any representations of anatomy which we have seen. Dr. Cruveilhier, in a refined spirit of politeness, while giving credit to those who have preceded him in undertakings of a similar description, speaks of Astley Cooper's plates of hernia, those of Dr. Hooper on the brain, those of Dr. Bright inserted in his Reports of Medical Cases, and those contained in Annesley's Diseases of India, as so many pictorial master-pieces: and adds, that the three last exhibit how great usefulness is possessed by colours in a faithful representation of morbid alterations, although the tone of the colouring is always "*a little forced.*" Without calling in question the merits of either of these useful works, or that, in particular, of collecting drawings, whether made by skilful or unpractised hands, of the recent morbid appearances found in diseases of the torrid zone, we must be allowed to say, that there can be no higher recommendation of the plates of Dr. Cruveilhier, either as regards outline, shading, or colouring, than a previous glance at those of Dr. Annesley.

Where such extraordinary pains are taken by individuals to subserve the cause of science, it is an act of bare and meagre justice to give at least to their names the praise due to their performance; a thin reward, certainly well earned, when the benefactor of mankind is satisfied with it. In connection with this, we may sketch some of the advantages possessed in the prosecution of the work. Dr. Cruveilhier's situation as professor of anatomy, hospital physician, and president of an anatomical society, give him perhaps the most concentrated opportunities in the world for accumulating cases furnished with dissections. "More fortunate than Albinus, who, deprived of all assistance, and filled with disgusting sensations, was often tempted to exclaim, as Vesalius had done before him, that the individuals whose corpses he dissected were less to be pitied than himself, I," says our author, "shall have for my coadjutors the larger number of my colleagues, the physicians and surgeons of the hospitals of Paris, who have already given me so many proofs of a co-operation as active as it is frank and faithful —I reckon no less upon the *concours* (a word for which we have unfortunately no corresponding English phrase or idea) of the members of the Anatomical Society, composed of the most eminent of the pupils of the Faculty, whose names will continually appear beneath my pen. The hospital to which I am attached as physician, the collections of the faculty, the *thousand subjects* which the board of hospitals annually furnishes for dissection to the rooms of the Eçole Pratique— these are the continually flowing sources in which I shall be enabled to obtain the innumerable materials of which I shall stand in need." It is proper to remind the American reader, that the corpses of these dissecting rooms are not the uninteresting, unexplained mass of putrefaction with which we so frequently have to deal; but that they come from the hospitals, institutions in which records are taken of every case; and that they hence easily furnish to those disposed to take the necessary trouble, the easy means of comparing the morbid appearances found with the previous symptoms observed on the sick bed. M. Cruveilhier considers himself equally fortunate in his artist; and the execution of the plates, as far as we can judge, fully bears him out in the style of his commendation. "I shall have the assistance, as a painter, of M. Chazal, whose name is already so honourably attached to the anatomy of the healthy organs, and who brings to his task a devotion and a constancy, worthy of all the praise bestowed upon his painter by the professor of Leyden. M. J. G. Martin, member of the Anatomical Society, profoundly versed in anatomy, is also so good as to attach his name to the pictorial department of this work, and in particular, to assist me with his scalpel in the difficult preparations." To mention the names of artists like these is indeed an act of justice—they are real benefactors to science. Were we to criticise, we should prefer the works of M. Chazal; those of the other painter partaking a little of stiffness and formality; yet no one could for a moment hesitate to pronounce the whole undertaking, in all its parts, highly honourable to all the parties concerned, and in every respect worthy of the age, the science, and the city which produced it.

It is not improbable that the progress of this splendid work, which, among many other tasks of industry, has undergone a temporary suspension in consequence of the revolution of the celebrated three days, may prove to be arrested for some time. We shall therefore take the present opportunity of presenting an analysis drawn from a small part of what has already come to hand; which furnishes indeed an ample supply of rich materials, and from the isolated and unconnected nature of the articles, will in no degree suffer by being deprived of its contiguity with future numbers.

The two first plates are taken up with the subject of vesicles commonly considered as hydatids of the placenta. A lady, twenty-four years of age, in fine health, underwent all the common symptoms of pregnancy. At the fourth month, she suffered considerable hemorrhagies, accompanied by acute pains in the lumbar regions; and both these affections continued to return at irregular intervals, and without any discoverable cause. At length, at the seventh month, contractions of the uterus took place, with severe floodings; and she expelled a mass which is the principal subject of the figures before us. It had the appearance of an ovum of very considerable size, but containing a fetus whose development had been arrested; it only presenting the characters usual at the end of six weeks, while, as we have seen, it was really seven months from the probable date of conception. The membranes existed in the usual form, adhering very firmly to each other, and containing a large quantity of amniotic liquor. The outer surface was, on the one side, thickly covered with vesicular productions, while this appearance, upon the other, was entirely absent. Upon removing the surface, however, which was composed of a white, rugous, soft membrane, without cotyledons, but otherwise exhibiting the characters of the surface of the placenta—upon tearing and raising this, a thickly crowded mass of similar vesicles appeared, deeply imbedded in the substance of this dense mass. We might form a tolerable idea of the whole by imagining an ovum, such as is discharged by an early abortion, and covered with its spongy chorion, to have grown to an enormous size, and become filled, throughout its whole texture, with the vesicular bodies in question. These are of every imaginable shape, and vary in size from little larger than a grain of sand to that of a large hickory nut. They afford, in consequence, a lively exemplification of this affection, which might be taken for hydatids of the uterus or of the ovum.

Far from presenting, however, the usual encysted appearance of hydatids, these bodies are strung together by an intricate net-work of pedicles, ramifying in every direction, and frequently attached, in the number of six or seven, to the same vesicle. Some of the pedicles are impervious; while others have tubulated cavities, communicating with those of the vesicles. When torn off, the pedicles break with great ease; and large clusters of vesicles are separated, presenting the appearance of a bunch of grapes; and some of these are represented in the plates with extreme beauty. In one of the views a great number of vesicles are given, preserving a more or less tubular appearance, and running regularly from the surface of the chorion to a thin, whitish, but vascular coat, which lay on the surface next the uterus, and appeared to possess the character of the placenta. These tubular vesicles, after assuming a cylindrical or spindle shaped appearance, contracted to a thread, became impervious, and finally terminated in minute clusters of vesicles. Most of the vesicles with their connecting pedicles, were alike deeply imbedded in thick clots of blood. When the vesicles were opened, they were found to possess a cellular appearance, the divisions of which were frequently visible through their transparent sides. Fluid could frequently be forced backwards and forwards between the vesicles and their stems; while, in other instances, these last were impervious. The fluid sometimes resembled serum; and in other instances was tinged with blood. From all this, the sufficiently apparent inference is drawn, that these vesicular bodies bear no analogy to hydatids. We have no encysted appearance, nothing like the imperfect semblance of a mouth, presented by some of the latter substances, and no freedom of motion. All appeared to grow on a stalk, exactly like a bunch of grapes, were connected together by interlaced filaments, and were constituted of a cellular structure.

This vesicular affection of the placenta, seems to possess considerably more interest than is commonly ascribed to it. It seems, for example, to be more frequent than is usually supposed. In examining aborted ova, Dr. Cruveilhier has repeatedly found a number of vesicles more or less concealed in the substance of the spongy chorion, in such a manner as to escape a superficial observation. He apprehends that abortion is produced, in this affection, by the interception of the nutriment belonging to the fetus, from the mechanical interposition of these vesicles; and in particular from their occupying a part of the surface of adhesion by which fluids are drawn from the mother. Some very curious discussions seem to have arisen among the elder anatomists in relation to the mode of production of these substances; discussions which a brief reference shows to have been by far more extensive than we should have imagined upon this almost forgotten subject. The existence of placental vesicles is noticed by a considerable number of authors—the earlier observers regarded them as dilatations of the extremities of the arteries; the opinion in which, after so long a discussion, our author settles down. This view is also advocated by Ruysch and Haller; while Schreger considers them as varicosities of the lymphatic vessels. Naturalists have regarded them as hydatid worms; and they have been designated by the terms *tænia hydatigena*, *hydatoidea*, and *vesicularis*. M. Hippolyte Cloquet gives them the name of *acephalocystis racemosa*. Bremser expresses the opinion that they are really living animals; but acknowledges that he does not expect to find others of the same opinion. Rudolphi and Cuvier decide in opposition to him; while Percy states that he has seen them move themselves in the hollow of his hand, an appearance which, as our author suggests, may have been really produced by the pulsations of his own arteries.. It has been remarked that the placental arteries are precisely those most adapted to the production of these vesicular appearances, as they are naturally formed with irregular enlargements and contractions. The manner in which they are produced has been also made a curious question. The suggestion that the pressure of adjacent parts has produced adhesion of the vessels from space to space, has been met by the remark that arteries which have undergone that process, as far as ascertained, become obliterated throughout the intervening portion; and the suggestion as to lymphatics is perhaps conclusively answered by the fact that no lymphatics have been shown to exist in the placenta. M. Cruveilhier starts the consideration that these tumefactions may be produced by enlargement of the cellular membrane between the coats of the minute arteries, so as to obliterate their cavities; but concludes by stating that he conceives the sound course to be simply to record the fact, as a peculiarity of the placental arteries, without undertaking as yet to settle its mechanism.

In speaking of the frequency of diseases of the placenta, he notices four interesting cases, in which hectic fever existed, the parent was thought to be consumptive, and the child was born dead; all which effects were produced by a suppuration between the placenta and the uterus; and adds that in one of them he was enabled to predict the result—an effort of diagnosis which he justly states to have had a bold and imprudent appearance, until verified by the result.

Plate 3, though a much more splendid figure, is far less interesting in point of medical philosophy. It is so precisely on account of its rarity; being, so far as known, an absolute unique. Some students at the Ecole Pratique met with a singular production which they had mangled before they discovered its nature. It proved to be a chain of tumours, formed of, or rather at the expense of the superior, accessory superior, middle and inferior cervical, and superior thoracic ganglia of the great sympathetic. These were enormously enlarged; the principal mass being almost three inches long and one inch wide. Their texture was replaced by a dense, fibrous, cellular matter, leaving large areolæ, in which M. Cruveilhier could not detect the least trace of nervous matter, of either the white or cineritious species; although he found a few thin, whitish lines, which he takes to be the neurilema of nervous fibres, deprived of the medullary matter they originally contained. Dr. C. conceives the most elementary and universal truth at which we have attained in morbid anatomy to be this: that no elementary structure is ever *altered* by disease, the apparent changes which we meet with being really produced by the deposition of foreign matter, or the organization of new structures intermixed with the old, in consequence of which these latter are liable to absorption. Of this principle, expressed in his preface, the present case will form a beautiful exemplification.

No record is preserved of this curious case; nor were the remaining parts of the body in a condition to admit of examination; so that this otherwise interesting observation is absolutely barren, until future facts shall have been compared with it. Under these circumstances, we spare the reader the minute details.

Plate 4, is a superb coloured figure of what is styled cancer of the kidney. Nearly all the lower part of the kidney is occupied with a yellow tubercular mass, containing a cavity in the centre, which had been filled with a sanious fluid; while round the superior half of this is laid a thick stratum of the matter which we call fungus hæmatodes. This substance, as both described and figured in the specimen before us, exactly resembles the fetal brain; from which is perceptible the propriety of the term used by the French, "encephaloid tumour." It is thickly sprinkled with red bloodvessels; or rather as M. Cruveilhier considers them, red channels, containing blood, without any vascular parietes. He observes, as a character serving to distinguish two different classes of morbid productions, that the one, embracing cancer, encephaloid tumour, false membrane, and gelatinous infiltration, are almost always productive of new vessels or tubes, containing blood; while among pus and tubercular matter, these are never found. The vessels or tubular cavities thus produced, he apprehends to be entirely unconnected with the general circulation; and in consequence, inclines decidedly to the opinion of Laënnec and others, that these productions (at least some of them) are really foreign existences, living like grafts, or parasitic animals, in the midst of the human texture, from which they derive their nourishment, but with which they have no other vital connection. Hence he endeavours to explain the incurable character of cancer. We may starve the cancer, by starving the patient at the same time; but it is a being entirely beyond the reach of medication, and will inevitably continue to exist.

The diagnosis of diseased kidney is acknowledged by our learned and scientific author to be a task of extreme difficulty. The present patient was fifty-two years of age, and had complained, five months previously, of severe pains round the umbilicus, followed by a discharge of bloody urine, which continued for a month; at the end of which time the urine returned to its natural appearance. From this time he suffered by a diarrhœa, which however was subject to many variations. He was found emaciated—without any yellow tinge—extremely debilitated—with his lower extremities œdematous—with the tongue smooth and pale—thirsty—complaining of no pain. A large voluminous tumour was felt in the right lumbar region, extending from the edges of the ribs to the iliac fossa. This tumour was indolent, the patient not having discovered it until warned of it by his physician. An elastic tumidity was felt in the adjacent part of the abdomen. Tumefaction of the spleen was suspected, but as the patient was found not to have suffered with intermittent fever for twenty years, a fresh examination of the hardened body was made. It was found immoveably attached to the spine, capable of being felt from behind, and arranged perpendicularly, instead of the obliquity usual in enlarged spleen, which M. C. describes as projecting downwards, forwards, and to the right. It was then decided to be the left kidney; and this judgment was confirmed by the patient's narrative of his previous symptoms.—The lower half of the great intestine was found inflamed and ulcerated; an effect thought to be produced by the extension of the inflammation from the kidney to the great intestine, which adhered to it; as was also the case with the end of the duodenum and beginning of the jejunum.

Other phenomena are given which exemplify some of the sources of error in the use of the stethoscope; but we shall not copy them. The lungs were sound; and the pleura contained a quantity of watery serum, which had given rise to ægophony.

Plate 5, contains figures of two cases of inflammation of the kidney. Of the first of these, the most remarkable symptom was *asthma.* The respiration was sibilant, and the difficulty of breathing such as to give rise to orthopnœa. The cylinder betrayed, throughout both lungs, all the varieties of sibilant respiration which characterize the spasmodic constriction of the bronchia. The face was pale—the pulse nearly natural as to frequency, but small—the patient was stated to have suffered these symptoms fourteen days. The case was soon complicated with obstinate vomitings; and it was not till the thirty-third day after admission, that pain was felt on applying pressure to the abdominal cavity, particularly in the left lumbar and iliac region. Yet there was no distension, meteorism, nor fever. The first impression was, that the case was peritonitis; but a decision was ultimately made, that probabilities were more in favour of a gastritis, or a gelatinous softening of the stomach and intestines. In four days, the patient expired; having manifested no very remarkable addition to the above symptoms, but undergone a great increase of them.

The lungs were found in a state of congestion, but otherwise *healthy;* the pleura, the heart, and the great bloodvessels were healthy; the stomach and intestines, containing an augmented amount of mucus, tinged of a deep yellow, but exhibiting no other traces of disease, except a number of red points thinly dispersed. Slices of the liver, and spleen, and the substance of the pancreas, were perfectly natural. The last named organ terminated in the first curvature of the duodenum; but was natural in its texture.

The urinary organs and uterus remained. The left kidney was in a state of atrophy, and reduced to one-eighth part of its natural size; while the corresponding capsula renalis was enlarged. The left kidney appeared to be the principal seat of disease. It was of the natural size, of a kind of coffee colour,* tinged with a faint blush, and sprinkled lightly with stellated dots, of a bright red. Its substance was so completely softened as to render it impossible to remove the investing membrane, or to make a section through its substance, without leaving the surface in a torn and pasty condition; which appearance, so difficult to represent in a drawing, is imitated with surprising success. The whole cortical matter was converted into a reddish white substance, of about the consistency of a poultice; from which no pus or serum could be expelled by pressure, but which appeared to contain a considerable quantity of them in intimate combination, forming one of the finest specimens of softening. The tubular matter of the kidneys was perfectly natural; the pelvis and ureter contained a great number of small calculi, together with a considerable amount of pus, which had found its way into the bladder; and the delicate lining membrane of these passages had became softened and removed in large spaces, so as to exhibit the areolar texture of the pelvis of the kidney. An *abscess*, about an inch long, was found lying along the internal edge of the pelvis of the kidney; and communicating with the latter by two orifices. There were three other abscesses, about the size of a pea, but without communications. The fat about the kidney was enormous in quantity; and that which immediately surrounded the ureter was indurated and intimately adherent to that tube, and at the lower end, formed a solid mass with the latter, and the left ovarium and fallopian tube. The opposite fallopian tube had adhered and become impervious. Other marks of chronic inflammation were found about the uterus; such as an adherence to the rectum, fibrous tumours on its posterior surface, under the peritoneum, and a small polypus within.

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* *Café au lait*, clair, teint en rose.

The patient, Madame B., was sixty-three years of age, and excessively fat, and was represented as having been habitually of a relaxed and phlegmatic habit. She had never passed calculi, nor complained of any suffering in the region of the bladder. For years previously she had pains in the loins, which were attributed to rheumatism—the attack, however, had come on with nausea and vomiting; which were ascribed to indigestion. She had, at the same time, severe pain in the left iliac and lumbar regions. Tartar emetic injections, bleeding and leeches had given her relief; and the symptoms had been again aggravated after drinking wine and water. She was alleged to have discharged her urine as usual, during all the time when she was at home; and while she was in the hospital, it could not be ascertained whether she urinated at all.

We would gladly carry further an analysis of this splendid production; but the bounds assigned to our paper necessarily interrupt us. We have taken the cases as they presented themselves; knowing no means of selection amid such rich and copious materials, to do justice to which would occupy a space totally disproportionate to the size of our undertaking. The subsequent articles are fully equal in interest to those which we have selected; and many of them superior in point of utility from their more frequent occurrence in practice. Among these are several plates of malconformations; in which, besides much monstrosity and unusual arrangement, as of blood-vessels, &c. there is furnished a series of beautiful exemplifications of club-foot, &c. which has given rise, we understand, in a great measure, to the useful labours of our townsman, Dr. Togno. Another series of four superb plates exhibits the follicular inflammation of the small intestines, to which we have had occasion so frequently to allude in our former numbers, displaying it in every stage of its progress and cure. Twelve plates, in the finest style, illustrate the diseases of the brain; one furnishes several beautiful views of apoplexy of the spinal marrow; another a case of spina bifida; five uncoloured plates, finely executed, illustrate the subject of luxations; one, strangulated hernia, &c. &c. &c. The nine numbers in our hands contain fifty four plates, the great majority of which are coloured, and which illustrate probably eighty or ninety cases; scattered, apparently with a most judicious hand, over the various departments of medicine and surgery, and forming altogether by far the most agreeable and practically useful illustration which we have ever seen in the sad but invaluable science of morbid anatomy.

QUARTERLY SUMMARY OF MEDICAL AND SURGICAL INTELLIGENCE.

I. ANATOMY.

1. *Hermaphrodism.*—At the sitting of the Royal Academy of Medicine at Paris, December 14, M. Dupuytren described two individuals affected with what has been improperly denominated hermaphrodism. One of them is twenty-two years of age, and was entered in the register of the Etat Civil as a female, and was dressed as a girl up to the age of eighteen. When fifteen years old he experienced the venereal desire, and had attempted, but in vain, to have connexion with men. At eighteen his beard grew, his form became manly, and he began to look after women. Being recognized as a man at twenty years of age, he put on a suitable dress. In this individual there is no trace of an urethra in the penis. The scrotum is divided along its mesian line, and the orifice of the urethra appears at the perineum.

The other case is that of a child two years and a half old, and having at the bottom of the belly a red tumour covered with a mucous membrane, on which are two open orifices which continually distil drops of urine, and which consist in what is called an *extrophia* of the bladder.

2. *Newly discovered Muscles of the Penis.*—Mr. John Houston, M. R. I. A. &c. has published in the Dublin Hospital Reports, Vol. V. an account of two newly discovered muscles for compressing the dorsal vein of the penis, in man and other animals, and also of a similar provision for compressing the veins of the chameleon's tongue.

Mr. Houston commences with observing that there is a striking resemblance in the general construction of the penis among the various tribes of mammalia. They all have corpora cavernosa, and a corpus spongiosum, urethra, bloodvessels and muscles, so constituted as to evince a complete uniformity of design in their structure throughout the whole class.

The cavernous bodies are now well known to consist of a congeries of bloodvessels, chiefly veins, coiling and anastomosing among each other, and which compose their "entire," with the exception of the fibrous laminæ which give them form and strength.

The corpus spongiosum is also composed of innumerable bloodvessels; its extremity being swelled out into a bulb called the glans. In some carnivora, as the dog, the glans constitutes more than three-fourths of the bulk of the organ.

The arteries of the penis, derived from the iliac, spring from the pudics. Two branches usually enter the bulb and supply the corpus spongiosum:

two enter the corpora cavernosa by their crura, and two others, the dorsal arteries, after passing under the arch of the pubis, run forwards on the dorsum penis, parallel to each other, and enter the glans. These several branches communicate with each other more or less freely in different stages of their course. The vessels of the spongy body communicate through the fibrous coat of the corpus cavernosum with the vessels of that body.

The veins agree in number and situation with the arteries; those that accompany the arteriæ dorsales are the principal veins for the return of the blood. Their branches emanate from all parts of the penis; those derived from the corpus spongiosum wind round the sides of the penis, and unite on its dorsum with those from the corpus cavernosum and glans. Two large trunks are thus formed, which unite into one large vessel that passes under the arch of the pubis; and immediately afterwards spreads out into a plexus, enveloping the sides of the bladder and prostate, and at length terminating in the iliac veins.

While under the arch the dorsal vein occupies the centre of the upper surface of the penis, and the arteries and nerves lying on each side, are at a short distance from it.

Mr. Houston says, it is most probable that the veins are the chief, perhaps the only seat of that sanguineous accumulation that occurs during the turgescence of the penis, the arteries only carrying the blood to the organs.

Mr. Houston gives in detail the reasons for believing that neither the musculi erectores penis, acceleratores urinæ, nor transversales perinæi can so press upon all the veins of the penis as to produce erection; and he thinks it evident that their combined powers cannot produce the remarkable stagnation of blood in the vessels that is noticed in that condition; for the greatest outlet, that by the dorsal vein, would remain free and unobstructed.

We shall quote the following paragraph at full length. "In giving rise to that congestion which manifestly occurs in erections, there are most probably two *phenomena* (!) in operation; the one, a peculiar elevation of nervous energy which attracts through the arteries of the part a sudden and abundant flow of blood; the other, a mechanical process by which the blood is detained during the act, in the veins of the organ." We object to the above passage, because it avers the existence of a power which is not yet proved to exist, viz. that of *attracting* blood into an organ through the arteries, and by means of an elevated nervous energy in the part. If the elevated nervous energy is sufficient to attract the blood into an areolar tissue so as to expand and erect it, that same energy ought to be charged alone with the causation of the whole of the phenomena of erection, and no reference ought to be made to a mechanical contrivance for retaining the blood in the tissues. Mr. H. in the succeeding passages refers to many examples of areolar tissues which are subject to turgescence without the intervention of any mechanical dam. But he thinks that the mechanical apparatus for retaining the blood in the penis is designed to give a greater permanency to the fluxional movement, and enable it to give effect to the function of that organ; but evidently dissatisfied with this want of consistency in nature's contrivances, he says in a subsequent paragraph that the establishment of the fact would be important, and might perhaps justify us in inferring that nature always provides a mechanical agency for the purpose of accumulating the fluids in erectile tissues.

Mr. H. says he was first led to attend to this subject by the late ingenious Mr. Shekleton, who, while dissecting the penis of a dog, discovered two muscles connected with the venæ dorsales, and adapted to make pressure upon them.

The muscles under consideration in Mr. Houston's paper are situated between the arch of the pubis and the penis; he proposes to name them—

Compressores venæ dorsalis penis. Mr. H. found them readily in the dog, wolf, jackall, bear, badger, cat, racoon, coati-mondi, marmot, aguti, horse, seal, &c. &c., and he persevered in his search for them in man until he found them on the 15th of July, 1830, where he demonstrated them to many pupils and professors at Dublin, among whom are Drs. Cusack, Jacob, and Graves.

We must refer to the book for a description of these muscles in several animals; but in man, the compressores venæ dorsalis penis are less distinct than in most mammalia. They arise from the rami of the pubis above the origins of the erectores penis and crura, and ascending in a direction forwards, are inserted above the vena dorsalis by joining with each other in the mesian line. They form a thin stratum of muscular and tendinous fibres about one inch long and three quarters of an inch broad, and may perhaps be looked upon as portions of the erectores penis, which, instead of being inserted into the corpora cavernosa, mount over those bodies to exert their compressing influence on the vena dorsalis. They enclose between them and the penis, the vein, arteries and nerves of this region.

Mr. H. in order to test the effect of compression of the vena dorsalis made several experiments in which he tied up the veins in dogs, which was followed by frequent, easily excited, and long continued priapisms. In an experimen the tied up the dorsal arteries, which had no bad effect on the dog, but it had no priapisms.

In presenting the foregoing view of Mr. H.'s paper, we have made use, for the most part, of his own words. We should have been well pleased to give his whole article, word for word, because we regard the discovery as of very great importance, not merely as being a new anatomical fact, which it is very seldom the lot of moderns to meet with, but also, and more particularly, on account of its physiological application to the explanation of that riddle, areolar expansion, which, upon the hypothesis of *attraction*, has been heretofore absolutely unintelligible.

II. PHYSIOLOGY.

3. *Dr. Apjohn on Expired Air.*—The 5th vol. of the Dub. Hosp. Reports contains an account of "Experiments relative to the Carbonic Acid of Expired Air in health and in disease, by J. Apjohn, M. D." &c. &c.

It is not possible to give a description of the beautiful and simple contrivance with which Dr. Apjohn executed his experiments. Suffice it to say, that the respired air, being measured, was received into a bladder; it was subsequently transferred to a vessel containing caustic potassa, the affinity of which for carbonic acid is well known. The carbonic acid being absorbed the air remaining was measured, and the difference between the original quantity and the residual air after absorption was the amount of the carbonic acid exhaled. From numerous experiments carefully performed, it was found that the carbonic acid of air once respired, was at a mean of the several experiments but 3.6 instead of 8.5. the estimate of Messrs. Allen and Pepys' observations.

In these results Dr. Apjohn nearly agreed with those obtained by Dr. Prout, to which he refers as published in the Annals of Philosophy, vol. ii. page 350, the mean of Dr. P.'s experiments being 3.45.

Dr. Apjohn also speaks of the coincidence between his results and those of Dr. Prout, relative to the influence of the period of the twenty-four hours in which the observations were made, viz. that the quantity of carbonic acid obtained its maximum between 11 A. M. and 1 P. M., and that it was at its minimum at 8 P. M. But he found that there was occasional irregularity at other periods of the day, as was also observed by Dr. P.—an irregularity that could sometimes be charged to the influence of a depression of the mind, while he did not discover that the use of vinous drinks exerted any sensible influence on the quantity of carbonic acid exhaled. Messrs. Allen and Pepys had stated that air once respired, contained nearly as much carbonic acid as that which had been repeatedly breathed; but Dr. Apjohn shows by the following table that Messrs. A. and P. committed a great error in making such a statement.

August.	Carb. acid once respired.	Carb. acid respired as often as possible.
3.	3.47	6.4
4.	4.1	7.1
7.	4.3	7.1
12.	4.1	6.0

The above table shows that one respiration of air never yielded more than 4.3., and Dr. Apjohn says, that although the respirations were repeated until he was threatened with asphyxia, the quantity produced never could be carried above 8.—while Messrs. A. and Pepys state that 8.5 is the mean found by a single respiration.

Mr. Nysten has stated that when air is repeatedly respired, it attains to the maximum quantity of carbonic acid, and if the respiration of it is continued after that, the carbonic acid is diminished in quantity. Such was not the effect produced by Dr. Apjohn's experiments, for he never found that after raising the per centage to 8, it was reduced below that amount, by the most persevering repetitions of the breathing.

The author further states, that if about five per cent. of the oxygen be removed from atmospheric air, it will no longer support combustion—and the same effect will be produced by introducing into pure atmospheric air fifteen per cent. of carbonic acid; hence it appears that the vitiation of air by respiration is produced by a double cause, one the reduction of its oxygen and the other the addition of carbonic acid to it. If the 3.5 per cent. of carbonic acid, or even the 8 per cent. were added to atmospheric air, without actually abstracting its oxygen from it, it would be still respirable, but in nature the carbonic acid becomes not a simple addition, but a substitute for oxygen.

Dr. Apjohn and Mr. Grimshaw, his friend, went to a manufacturing establishment, in which there was a room at 60 degrees of the thermometer, and another where the mercury stood at between 146 and 152.

The carbonic acid produced in a temperature of
60° by A. was 4.3—at a temperature of 149° 2.7
by G. 4.4 3.0

There is a table representing the quantity of carbonic acid expired by patients under several different diseases, as phthisis, continued fever, empyema, diseases of the heart, hydrothorax, &c. In all the organic affections of the thoracic viscera, says Dr. A., the proportion of carbonic acid is materially reduced, and particularly in diseases of the heart. The case of Enkes who laboured under hypertrophy of the organ was remarkable—she yielded but 1.6, although her pulse was constantly at 110, with sound lungs. It is diminished in dropsy and probably in pregnancy, whereas its amount is not diminished, but sometimes increased in continued fevers and all acute affections.

4. *The placental Bruit de Soufflet.*—In a former number of this Journal we gave some account of the application of the stethoscope for the purpose of investigating the condition of the womb and its contents. In the Dublin Hospital Reports Vol. V., is a paper on this subject, by Dr. Evory Kennedy, of considerable length. The auscultation with the stethoscope or with the ear enables us to detect two kinds of sounds, one arising from the action of the fœtal heart, the other from the rush of blood into the placenta.—The latter sound from its resemblance to the whizzing noise of a bellows, is called bruit de soufflet, or as it is now englished, placental bellows-sound. The placental soufflet is not always alike: at one time it is like the roaring of a conch shell when held close to the ear; at others it resembles the sound produced by rasping or sawing, and again it is a musical or hissing sound.

Dr. Kennedy has found it similar to the cooing of a dove, and sometimes a sound like that of the drone of a bag-pipe coexists, but does not interfere with it. The most constant form is a combination of the bellows with the sawing or hissing sound, commencing with one of the former and ending with the latter, which is sometimes so protracted, that the last soufflet is audible when the subsequent one begins, seeming to run into each other. These sounds are readily distinguishable in advanced pregnancy, and though not so audible and distinct in the early stages, they are still sufficiently so to the practised ear.

Dr. Kennedy gives a pretty long statement of his views relative to the connection of the fœtus with the mother—we cannot follow him in all his details, the sum of which however may be stated as follows:

The ovule descending along the fallopian tube enters the cavity of the womb, and pushes before it that part of the decidua which stops the mouth of the tube. The part pushed away is called the reflected decidua, and when the ovule has enlarged so as to bring the reflected into contact with the original or true decidua, the vascular surface of the chorion unites with it, and the place of union becomes the place of the placenta, which consists of two portions, one belonging to the chorion, and one belonging to the decidua.

According to this notion of Dr. Kennedy, we have a double layer of decidua betwixt the womb and chorion. He fully denies that any vascular communication exists, or has been found to exist betwixt the mother and the ovum; but he makes one placenta, consisting of two parts, the maternal portion formed of the decidua, being vascular and directly connected with the vascular system of the womb, and the other very vascular also and directly connected with the child.

Such is not our view of this subject; such a view we think cannot be taken upon a fair consideration of the circumstances; for example, the whole product of conception comes off in delivery—both the fœtal and maternal portions as they are called, are thrown out by the contraction of the womb; and so easily are they detached, that a fall, a fright, or any considerable physical exertion is frequently found to cause the placenta to be partially detached from its connection with the womb. In cases even of adhesion of the placenta, the consequence probably of a somewhat inflammatory excitement, we are mostly enabled to peel off the placenta with great facility with the ends of the fingers inserted between it and the womb. And in pregnant women subjected to autopsy, and those who have undergone the cesarian operation, no difficulty ordinarily exists in removing the whole of the afterbirth. Now, we ask, could this be the case if the maternal portion of the placenta was connected with the womb by hundreds and thousands of arteries and veins,—are arteries so weak that they can be plucked up by the roots like hair or grass? No. We are compelled to suppose that the placenta separates in the middle, leaving its maternal portion adherent to the womb like the acetabula of the mammalia, or else that the adhesion betwixt it and the womb is exceedingly slight, the bond betwixt them being merely a delicate laminar tissue which may transmit a few capillary vessels.

But to proceed with our account of Dr. Kennedy's opinions.—

He conceives that the placental soufflet depends on the rush of blood through the vessels of the womb, which are much more numerous and larger at the part to which the placenta is attached; whence he calls it the placental portion of the womb, and he deems it possible that the sound may be partly owing to the passage of the blood through what he calls the maternal portion of the placenta also.

The placental soufflet is heard only when the fœtus is alive--it ceases upon its death, but the sound is distinctly periodical, and exactly synchronous with the arterial pulse of the mother. It is always heard in that part of the womb to which the placenta is or has been attached, so that when the maternal portion of the placenta ceases to have pervious vessels there is no placental soufflet.

The sound must depend on the rush of blood along arteries, for it is systolic: it cannot depend on the fœtal circulation, for it is synchronous with the movement of the mother's heart; and lastly, it is only observed about the place where the placenta is attached.

There is in Dr. Evory Kennedy's paper a singular contradiction, for he informs us at p. 241, that "The placental sound is present in pregnant women, only when the utero-placental circulation exists, and ceases when the vessels which serve to sustain this function are no longer pervious. A fact which we can ascertain by examining a woman shortly before parturition, when we observe this phenomenon in full energy; and again, when the uterus is empty and perfectly contracted after delivery, or when the fœtus having died *in utero*, an obstruction in this system of vessels is produced, in all which cases not the slightest vestige of the phenomenon can be discovered."

In a subsequent part of his paper, at p. 244, Dr. Kennedy refers to a preceding paragraph in which he had mentioned the *possibility* of the placental sound depending on the circulation in the maternal portion of the placenta. "What," says he, "affords a strong presumption in favour of this opinion, is the change of character which the placental sound undergoes when the circulation is confined to the arteries of the placental portion of the uterus, without entering the placenta, as in those cases where the phenomenon is observed to continue after the expulsion of this body, or the *death of the fœtus in utero*, when the placental circulation has ceased; for the death of the fœtus in utero and consequent cessation of the fœtal circulation, do not, of necessity, cause the discontinuance of the soufflet although they alter its characters; neither does the sound invariably cease on the separation and expulsion of the placenta," &c. &c.

The above citation serves to show how completely we are left in the dark upon this physiological point by Dr. Kennedy; for if, as at p. 241, the soufflet ceases with the fœtal circulation or expulsion of the placenta, then we might refer it to some dependence on that circulation, or placenta; and again, if, as at p. 244, it may continue after the death or birth of the child and the delivery of the afterbirth, it is plainly independent of the ovum.

In either case, however, it seems more consonant with the dictates of prudence, to refer it to the action of the placental portion of the womb, which is endowed with a higher degree of vascularity than the other parts of the organ, the more particularly as the sound has by some observers been found to exist on every part of the womb.

The application of the various modes of auscultation relative to the placental soufflet and the fœtal pulses, needs no illustration here, for it will at once be evident that the stethoscope or the ear may reveal the fact of pregnancy when the placental soufflet or the action of the fœtal heart is discoverable by these means.

Dr. Kennedy says he has not succeeded in any case in detecting the placental sound until after the second month from impregnation; but he has frequently done so in the tenth, eleventh, and twelfth weeks.

III. PATHOLOGY.

5. *Acute and Chronic Œsophagitis.*—From a paper by Dr. Mondiére contained in the number for December 1830, of the Archives Générales, we condense the following description of the symptoms of œsophagitis. The most constant symptoms of inflammation of the œsophagus are heat, pain, vomiting, hiccough, spasm, the discharge of a glairy fluid, thirst, &c. The first symptom is pain, accompanied and generally preceded by heat and dryness at some point along the course of the œsophagus; this pain is at first light, but soon becomes more intense and is augmented when the patient speaks or attempts to swallow; it becomes insupportable when the food that has been taken passes over the part at which the inflammation is seated. The pain may be so intense as to prevent the patient from drinking although suffering from thirst. It is ordinarily fixed, but may pass successively along the whole length of the œsophagus. Dr. Mondiére thus describes from personal experience some of the phenomena of this form of inflammation. He was attacked by an intense pharyngo-œsophagitis which he treated by two applications of leeches, emollient cataplasms, and sinapised pediluvia, &c. "I experienced," he remarks, "a guttural cough, attended with a painful and difficult discharge of thick viscid mucus. For some days the pain was stationary, being felt at the inferior part of the neck on a level with the larynx; day by day however it shifted to a point lower down in the neck, and in this manner passed along the whole course of the œsophagus; it remained for a short time stationary at a point corresponding with the inferior part of the sternum, disappearing finally about the tenth day. For four days I was unable to swallow either solids or fluids; I was able to mitigate my thirst only by holding cold water in my mouth or by sucking an orange—on attempting to swallow merely a spoonful of fluid, I experienced at the part where the œsophagus was inflamed, a sensation of burning and tearing of which it is difficult to form any idea. About the 5th day the pain I felt was supportable, but for a long time I was obliged still to take my food perfectly cold." The author has collected from various sources a number of cases of the disease he describes, adapted to show its course and terminations. We copy the following which is derived from the work of M. Billard upon the diseases of children. It presents an example of œsophagitis terminating by gangrene. An infant 16 months old, affected with rickets, entered the infirmary labouring under *herpes labialis* which had occurred subsequently to a very mild attack of measles: some days after its admission, very frequent vomiting occurred, particularly after eating, with acid eructations, a small and low pulse, general paleness of the skin, disgust for food. The child continued to sink, without any complaint of pain, crying or agitation. The foregoing symptoms persisted for some time, but towards the period of death, the vomiting became less frequent, the matter discharged being mucus mixed with

whitish flocculi. The pulse still small and feeble, became somewhat quicker. Finally, eructations without vomiting occurred, emaciation rapidly increased and the patient sank, without having presented any symptoms of a more marked character than those described. *Autopsy.* General paleness of the body—perfect marasmus—mouth sound—soft grayish spots surrounded with a bright red circle upon the pillars of the soft palate, the sides of the glottis, and along the œsophagus, the mucous membrane presenting long irregular escars of the colour of soot and detached in shreds; in the intervals between these escars the membrane was of a bright red, presenting deep excavations penetrating almost entirely through the coats of the œsophagus, and from which was evidently exhaled a gangrenous odour. The stomach presented merely red striæ. The small intestines pale.

6. *Neuralgia of the Face disappearing on the spontaneous occurrence of Ptyalism.*—This interesting case is related by Dr. Carresi in the *Annali Universali di Medicina* for *Oct.* 1830. A female 52 years old, in very delicate health, had experienced for four months a violent pain in the nerves of the face. This pain had occurred subsequently to an exposure to cold. It had been unsuccessfully treated by a variety of remedies; many of the means employed appeared indeed rather to increase it. The patient obtaining no relief gave up the use of medicine entirely. For fifteen days the pain continued unabated, when an abundant secretion of saliva occurred spontaneously. The saliva discharged had a sweet taste resembling honey. For three days it increased so much in quantity that the patient appeared as though she were discharging a fluid from her mouth by vomiting. Whenever she spake or slept with the mouth open it ran out in a continued stream, and when she fell asleep with her mouth closed she was in imminent danger of suffocation. During the whole of this time her bowels were constipated, the urine small in quantity and all the other secretions diminished in amount. With the augmentation of the salivary secretion the neuralgic pain of the face gradually diminished. Dr. Carresi considering the ptyalism which occurred in this case as a critical discharge, merely prescribed slightly astringent gargles, with the view of preventing its sudden suppression and the consequent occurrence of a profuse diarrhœa. The pain of the face finally disappeared entirely, and the discharge of saliva becoming gradually less abundant, finally ceased and the patient soon recovered her ordinary health.

7. *Condition of the Liver in many cases of Icterus.* The following summary is from a paper on this subject by M. Corbin, which appeared originally in the *Archives.* We are indebted for it to Johnson's Review for April of the present year.

Icterus is a disease which is very common, but the causes of the yellow suffusion of the skin are often very obscure. When evident symptoms of gall stones do not exist, we have nothing but conjecture as to the change in the regular current of the bile. It may be viscid bile plugging up the ducts—or tumors pressing on them—or inflammation of the duodenum, or other causes of which we are ignorant. The disease is not often fatal, and therefore dissection has not thrown so much light on the pathology of the complaint as on that of some others. It has even been discussed in a concourse at Paris, whether the liver itself be always the seat of the cause which induces icterus. We know indeed, that jaundice will suddenly arise from strong emotions of the mind; but surely this must be from derangement of the biliary apparatus. But to come to facts, out of 1800 patients in the wards of *La Charité*, between the 1st of January 1828, and 1st of April 1830, 22 were cases of icterus. From this number were excluded all cases of fugitive or slight tinges of yellow on the skin, from temporary bilious affections or indigestion. The cases were all regular icterus. Ten were in females and twelve in males. Fifteen were cured and seven died; a very great proportion in the mortality, as compared with experience in this country. Some of these seven became complicated with other severe affections before death—others presented nothing but the jaundice. The following is a concise exposé of these seven cases.

Case 1. A young man 22 years old, died August 22d 1828, in consequence of small pox, which had come on a short time after the commencement of intense jaundice. The liver was more yellow than natural, and presented brown granulations interspersed in its substance. The biliary ducts were free from obstruction.

Case 2. An old man aged 64 entered the wards with jaundice Feb. 13th 1830, and died of peripneumony of the right lung March 7th. The jaundice had nearly disappeared before death. The liver was of a pale yellow colour, but the biliary ducts were free from obstruction.

Case 3. A female, affected with encysted ovarian dropsy of both sides for six years, was seized with icterus ten days before her death, and the complaint had become more and more intense up to that time. The liver had been compressed by the ovarian cyst, and was softer than natural. It was of a pale yellow—no obstruction could be detected in the ducts.

Case 4. An unmarried female, aged 30, had been twice in the hospital for liver affection, and ultimately died there May 1st, 1829. During life, the liver could be felt projecting below the ribs, and appeared tuberculated to the touch. There was ascites, and for four months before death, decided jaundice—slight at first, but gradually and regularly becoming more intense. On dissection, the liver was found enlarged, lobulated, interspersed with round bodies of encephaloid substance, and gorged with bile. The biliary ducts were free from obstruction.

Case 5. A man aged 63 years, entered the hospital April 27th, 1828, in a state of extreme emaciation and debility. He had cough, and other symptoms of pulmonary affection; but he complained chiefly of pain in the right hypochondrium, which, he said, was of long standing. The liver appeared to be considerably enlarged. He was intensely jaundiced. On dissection, the liver was found to be of great size, and full of tubercles, some of them softened down, containing a liquid or soft encephaloid substance. The gall bladder was enormously distended with green bile. The biliary ducts were entirely free from obstruction.

Case 6. A man 65 years old, entered the hospital November 15th, 1829, with intense jaundice. He was in such a state of prostration that little information could be elicited from him. It was ascertained, however, that the jaundice was of fifteen days standing. He died three days afterwards. On dissection, some yellow serum was found in the cavity of the abdomen. There was redness, but no ulceration in the mucous membrane of the stomach and bowels. The liver rose very high in the right side of the chest, without any apparent cause. It was larger than natural. It was full of tubercles of various sizes, consistencies, and colours. The gall bladder was distended with bile, but the biliary ducts were pervious, and quite free from obstruction.

Case 7. A man aged 74 years, (formerly Counsellor of Embassy) entered the hospital February 24th, 1828. His whole face was of a beautiful yellow colour. This had been of ten days duration. He had lost his appetite, was costive, and extremely weak. The urine was green—the liver appeared enlarged. Leeches were applied, and some medicines prescribed, which appeared to be of use: but on the 9th of March a diarrhœa occurred and continued for some days, then ceased. After this the legs became œdematous—ascites supervened; and on the 28th of the same month he died. On dissection, the duodenum was found united to the liver, or rather to a cancerous mass connected with that organ. This mass was of the size of a man's fist. The nature of it is not distinctly described. It included part of the pancreas, the biliary duct, the cervix of the gall bladder, and a portion of the concave surface of the liver. The biliary ducts were annihilated, or, at all events, totally impervious. The gall bladder was converted into a solid mass, somewhat resembling the substance of the cancerous tumour alluded to. In its centre was found a small quantity of inspissated bile. The liver itself was studded with encephaloid tubercles. From each incision made into its substance, a quantity of aqueous bile issued forth.

8. *Pathological Appearances presented in the bodies of the Insane dead.*—The following observations were collected in the Lunatic Hospital of Turin: we derive them from the April (1831) number of the Medico-Chirurgical Review.

1. *Case of cheerful Mania.*—The dura mater much injected, and adhering in many places to the pia mater—the latter softened—the brain pale, and rather softer than natural—cerebral convolutions effaced—right ventricle full of water—cerebellum and spinal marrow sound—lungs disorganized—stomach and intestines livid, with gangrenous spots—liver softened.

2. *Melancholic Monomania, with tendency to suicide.*—Membranes of the brain gorged with blood—no other unusual appearance in the head—none in the chest—small intestines inflamed, as was the whole mucous membrane of the digestive tube, from the mouth downwards—many aphthæ in this track—liver enlarged and indurated—biliary concretions in the gall bladder—spleen enlarged and indurated.

3. *Mania with Chorea.*—Effusion under the arachnoid—cerebral substance hard and much injected—sanguineous effusion into the spinal canal, with traces of inflammation along the spinal marrow—all the other organs sound.

4. *Mania which terminated in Idiocy.*—Some points of gangrenous aspect in the small intestines—brain very much softened, with much serum in the ventricles—nothing unusual in the other organs.

5. *Suicidal Mania.*—Meninges and cerebral substance highly injected—heart large—traces of phlogosis in the digestive tube, especially in the duodenum and jejunum, whose parietes were thickened.

6. *Mania with Pride.*—Meninges thickened and injected, having the appearance of parchment—strong adhesions between the two hemispheres—brain itself much injected—intestinal tube slightly inflamed.

7. *General Mania.*—Much effusion between the membranes of the brain: pia mater inflamed even to suppuration—cerebellum sound, as were the thoracic and abdominal viscera.

8. *Melancholia.*—Considerable inflammation in the small intestines—cerebral meninges injected—the other organs sound.

9. *General Emphysema caused by inflammable Gas.*—At the session of the Royal Academy of Medicine of Paris held on the 4th of January 1831, the following interesting case was read by M. Bally. A man of 25 years of age, had been ill for 15 days when he entered the hospital Cochin. He then laboured under symptoms of typhus fever: he complained, also, of a severe pain of the left thigh, and in his delirium asserted that he had been bitten in the knee by a dog; but upon the most minute examination no traces of any such bite could be discovered. The thigh as well as the scrotum were swollen—on the subsequent day the patient died. Autopsy, 8 hours after death. The corpse was found stained by a large amount of blood that had

transuded through the skin of the thigh and cranium, which were deprived of their epidermis; blood flowed also from the nose. The whole body was emphysematous. The left lower extremity was nearly double its natural size, of a brownish violet colour and covered with numerous phyctenæ; of these some were of a black colour, very extensive, collected in groups and gave discharge to a reddish serum mixed with a considerable quantity of gas; others were whitish and gave out only gas. The limb on being struck gave a [illegible] sound, and when pressed with the hand a manifest crepitation was produced. The abdomen was strongly distended with gas. The face and temples were injected and of a violet colour; incisions into the hairy scalp gave exit to a considerable quantity of dark blood. The nervous centre, and the lungs exhibited nothing remarkable. The heart was pale and empty. The morbid phenomena in the intestines were those usually met with after death from typhus fever. Bubbles of air filled the vessels of the pia mater and the left saphena vein. The lymphatic ganglions of the mesentery were enlarged and contained a gas, which took fire and exploded when the flame of a candle was brought in contact with it. The same was the case in regard to the air which issued from scarifications made into the legs, thighs and scrotum. A puncture being made into the cavity of the abdomen, the gas which escaped by it took fire on the approach of a candle—the flame produced by it was blue at its base and white at its summit—it continued for a considerable time. The combustion extended from the stream of gas to the edges of the wound made by the trochar, the flesh there became black and was consumed—the opening through the parietes of the abdomen acquiring double its original diameter. The gas contained in the subcutaneous cellular tissue over the thorax took fire in the same manner. **M. Bally** is of opinion that this case is unique and throws considerable light on the manner in which spontaneous combustion of the human body takes place. This combustion he conceives is occasioned by the production of a gas, secreted in the tissues by a morbid vital action, and which is inflamed by a spark of electricity coming from the body itself. He conceives that the production of the inflammable gas upon which the emphysema in this case depended, cannot be considered as a cadaveric phenomenon, as the emphysema existed previously to death: the examination of the body was made only eight hours after the extinction of life, and the corpse presented no indications of putrefaction. The reading of this case elicited a discussion. **M. Breschet** admitted that a morbid action taking place in the living tissues might give rise to the production of a large amount of inflammable gas, which is perhaps the cause of spontaneous conbustion, but doubted whether the natural electricity of the body would inflame the gas thus produced: this, he conceived, would require the contact of an ignited substance, as has occurred in all the cases of human combustion which have been observed for some years back. Many cases were recited in which an inflammable gas was found to exist in the organs of the body. M. Deneux noticed an instance recorded by Leduc in which there escaped from the womb during delivery, a gas which took fire and exploded—other members cited cases in which enormous emphysematæ promptly occurred either during life or after death. Some referred these collections of gas to a morbid secretion—others believed that more frequently, if not always, they are the effect of a putrid decomposition which may commence during life, but most usually does not occur until after death.

10. *Abscess of the Spleen and of the Brain.*—The following case is from Rust's Magazine, vol. 31. 1830. A dyer, aged 20 years, of a good constitution, experienced after lifting a heavy bundle, lancinating pains in the left hypochondrium, and soon after a spitting of blood. Three weeks after this he entered the hospital, labouring under pneumonia with anorexia, constipation, a greenish coated tongue, nausea and vomiting, and violent

fever. During four days he was bled once, and had administered to him a solution of salts, followed by a nitrous potion; at the end of this period the disease of the chest disappeared, but the gastric affection augmented. The fever and violent pains in the left hypochondrium were combatted by the application of leeches and the use of calomel. After a diminution of the symptoms for some days, the vomiting recurred, but was arrested by the use of analeptics. A slight mental alienation now manifested itself, followed by stupor: The administration of musk and phosphorus were ineffectual in its removal. The application of a blister was followed by a momentary disappearance of the mental affection, but speedily a deep coma occurred soon followed by death—preceding which the whole body was covered with a copious sweat. On opening the body, the spleen was found converted into an immense abscess, the parietes of which gave way on the slightest pressure,—they had formed attachments to the diaphragm, intestines, and the peritoneum lining the abdomen. On the surface of the brain several lymphatic exudations were noticed, and in the left hemisphere was discovered an abscess about the size of a nut, which communicated with the left lateral ventricle.

11. *Cancer of the Brain.*—At the session of the Royal Academy of Medicine of Paris, of the 8th of March, 1831, M. Rullier presented an anatomical preparation, the history of which he gave as follows. It was of the brain of a female 40 years of age, and of a good constitution. Eighteen months previous to her death she was seized suddenly with epileptic convulsions; these were at first at long intervals and of considerable violence, but subsequently they were less frequent and milder. She was subject also to excruciating attacks of cephalalgia which recurred periodically. Her vision became gradually weakened and finally destroyed, the other external senses experienced changes of a very anomalous character. Her intellectual faculties became at a later period affected also. Although the patient ate heartily, she became emaciated and weak. For about six weeks before her decease her condition appeared to be much improved; finally, however, during the night she was seized with a violent convulsion, followed by repeated attacks of epilepsy with loss of consciousness, and a feeling of impending suffocation terminating in death. *Autopsy.* Acute dropsy of the lateral ventricles of the brain, which appeared to have been the immediate cause of death. Organic degeneration of the middle lobe of the right hemisphere. At this part the brain appeared to be changed into a fibrous structure, of a white colour, and so tenacious, that it could be forcibly twisted without being broken. The striated body of the same side was softened, and in its immediate vicinity existed a cyst filled with a gelatiniform substance of very soft consistence. The oblique nerves from and including their commissure were atrophied.

12. *Causes of Death in Membranous Inflammations.*—In an article [illegible] this title, contained in the December (1830) number of the *Annales de la Médecine Physiologique*, M. Broussais has attempted to point out the causes of death from inflammations of the membranes. The following are the general conclusions to which he has arrived.

1st. Membranous inflammations, especially those of the abdomen, and above all gastritis and enteritis, give rise frequently from their very commencement to a congestion of blood in the brain and spinal marrow, which may destroy life, if not removed by appropriate remedies, before the primary disease has run through its stages, and even in a very short period; or rather they become the prominent disease as occurs in infants, in whom most ordinarily disease of the brain is caused by a gastro-enteritis.

[illegible] During the course of these diseases, there exists always a sympathetic irritation of the brain and spinal marrow, by which the acceleration of the circulation and respiration is increased, the intellectual functions are impeded, the sensations perverted, the voluntary muscles are incapacitated from performing their proper motions, the action of respiration is rendered irregular, in a word by it is caused all the nervous symptoms by which the membranous inflammations are accompanied, even under the mildest form.

3d. Where the inflammations under consideration have produced extensive morbid alteration of the mucous tissues, and menace a fatal termination, nervous symptoms present themselves of a more serious character than those noticed above. These symptoms assume the form of delirium and convulsions where the irritation affecting the brain is seated principally at its periphery—they assume the form of coma when the irritation becomes stronger in the centre of the brain, and tends to produce the exhalation by which the ventricles are filled and distended.

4th. It is this irritation, the traces of which always indicate a degree of inflammation, that terminates the life of the patient, by precipitating, as we believe, the ennervative movements, whenever death is not induced either by compression of the brain, by rupture of its fibres, by hæmorrhage, or by compression or considerable morbid lesion of the lungs or heart. We may even add, that peritonitis, whether it be produced or not by the perforation of the digestive tube, causes death only by the disturbance which it induces in the ennervation of the encephalo-rachidien centres, at least excepting when there does not occur a copious effusion of blood into the cavity of the peritoneum.

5th. Finally, we believe that our observations will permit us to conclude that the destruction of the mucous membrane of the digestive tube in the acute diseases which are or have been denominated *essential fevers*, is always the effect of inflammation; and if at certain points we find this membrane, or the parts surrounding those spots at which it has been destroyed, [illegible] state of atrophy and pale, this arises from the blood having been attracted by irritation towards some other part in the last hours of life, or from aqueous fluids by their presence or passage, having carried away the globules of blood and macerated the tissue already weakened and disorganized by the inflammation.

13. *Phthisis Pulmonalis—Softening of the Brain—Calculi in the Vesiculæ Seminales.*—We find the following case in the London Medical and Surgical Journal, November, 1830. It is related by Charles Mitchell, Surgeon. A man aged forty-five years, of great height and apparently of a good constitution, after exposure to cold, was seized in the month of January, 1829, with a severe chill, cough and pain in the chest. He refused to be bled and took only, for a short time, powders adapted to induce continued nausea—from these he derived no advantage. Six weeks from the commencement of the attack, whilst walking in the street and conversing with a friend, he lost all at once [illegible] command over his reasoning faculties, and shortly after his speech [illegible] he remained for two days, after which the symptoms of pulmonary disease became aggravated to an alarming extent. After some days he again lost suddenly his power of utterance—the mouth was at the same time drawn to the left side and his skin became pale and cold. At the end of eight days, the hemiplegia of the right side was complete so far as regarded the movement of the muscles: feeling however still continued. The disease of the lungs proceeded rapidly, and about the end of the month of August, the patient died in a state of complete marasmus. On opening the body, besides the morbid alterations in the lungs and in-

testines ordinarily found in those who die of phthisis, a thin layer of [illegible] was found beneath the arachnoid membrane of the brain—the pia mater was strongly injected—the ventricles and base of the cranium contained about eight ounces of serum. The anterior lobe of the left hemisphere was softened to such an extent that the cornua ammonis of that side had disappeared, and the medullary matter which composed it swam in the form of shreds in the fluid contained in the ventricles. Independent of these lesions, the right vesicula seminalis contained more than two hundred small calculi of an earthy character. No symptom during the life of the patient, caused the existence of these calculi to be suspected. Their formation is referred by Mr. Mitchell, to the long inactivity of the organs.

14. *Pneumonia.*—From a paper entitled *Recherches sur la Pneumonie*, by Henri Clermond-Lombard, D. M., contained in the *Bull. de la Société Med. d'Emulation*, it appears from the observations made by that gentleman that pneumonias of the right side are about one-third more frequent than those of the left. This he attempts to account for from the larger size and transverse direction of the right branch of the pulmonary artery. Pneumonia produces the greatest ravages during the two extremes of life. "If," remarks M. C., "we compare together the different periods of life, we shall find that adults are much less subject than infants to inflammation of the parenchyma of the lungs. Pneumonic inflammations constitute in the former but a fourth of their diseases, while in infants the proportion varies from a fourth to a fifth. The periods of infancy at which pneumonia most frequently occurs are, 1. The first or second year—2. the thirteenth year—3. the first month of existence. The periods of life at which adults are most subject to pneumonia, are 1. Old age—from the fifty-fifth, to the eighty-fifth year—2. between the twenty-third and twenty-seventh years."

15. *Symptoms of Asthma, of an Organic Affection of the Heart, and of extensive Disease of the Stomach, &c. from Compression of the eighth pair of Nerves by Encephaloid Tumors.*—The following case is highly interesting, as well from the obscurity of the diagnosis, as from its extreme rarity. It is related in the January number, 1831, of the *Journal Hebdomadaire*, by M. Montault. Julie H——, aged twenty-six years, lacemaker, was admitted into the Hôtel Dieu, on the 17th of March, 1829. She stated that she had been sick for fifteen days; on her admission her condition was as follows. Disagreeable taste in the mouth, nausea and vomiting—tongue natural—constipation—no pain at the epigastrium; the patient referred all her sufferings to the region of the heart. There was general paleness of the surface; inability to sleep—pulse very variable. Cough frequent, returning in paroxysms with a sense of strangulation—at first without expectoration, but soon giving rise to the discharge of a thick matter in small masses. Respiration sonorous with a loud mucous rattle within the chest. Had had no menstrual discharge for six months. On a level with the left sterno-clavicular articulation a tumor of about the size of a nut was perceptible—it was without pulsation and not painful on pressure. This tumour had slowly developed itself without any local symptoms of inflammation, and was considered to be one of the substernal glands tumefied. The disease of the patient had commenced in the beginning of March, 1829, without any evident cause, with hoarseness, difficulty of respiration, sonorous cough resembling that of croup and constriction of the throat. Occasionally the cough resembled that of pertussis. The patient was bled once in the arm—leeches were applied around the neck and sinapisms to the feet. Her symptoms persisted as described until the 21st of March, when frequent hiccough occurred with more frequent vomiting, and picking at the bed

clothes. The patient now fell into a state of exhaustion, of which no better idea can be given than by comparing it with the partial somnolency and stammering of a drunken person. She died on the 23d. During her residence in the hospital, the patient was bled from the arm, had several applications of leeches to the epigastrium, tisan of chiendent with Seltzer water, purgative injections, sinapised pediluvia, and blister over the sternum. *Autopsy,* thirty-four hours after death. The tumor on the left side of the neck was formed by a hard mass, white at its centre, having a lobulated appearance and presenting several red points—in a word an encephaloid mass. In the lungs no trace of tubercles was discovered, with the exception of a slight inflammatory engorgement at the base of the right lung, they were perfectly healthy. The bronchiæ, particularly their ramifications, contained a considerable quantity of a muco-purulent matter similar to that expectorated during the life of the patient. The heart and pericardium exhibited no morbid alteration—the same was the case with the æsophagus, the stomach and other organs of the abdomen.

Considering the absence of organic lesions of any importance, it was difficult to say upon what the symptoms under which the patient had laboured depended, when the encephaloid tumor existing at the upper edge of the sternum suggested the idea that perhaps the pneumono-gastric nerves, either of one or both sides, had been compressed by some tumor similar to that referred to. On a minute examination it was accordingly found, 1st. That a tumor of this kind about the size of a nut existed at the inferior part of the anterior parietes of the trachea in which it was, as it were, incased, and communicated by a small opening with the cavity of the windpipe—2d. Another similar tumor existed between the pulmonary artery and the arch of the aorta, precisely at the spot occupied by the cardiac nerves and ganglions—a 3d communicated also with the trachea, and compressed the recurrent nerve of the right side, and a 4th was found much lower and to the left, and was confounded completely with the recurrent of that side.

16. *Vaccination.*—At the session of the Royal Academy of Medicine of Paris, held on the 15th of January of this year, M. Emery read, in the name of the Vaccine commission, the report which is made annually to government in relation to the vaccinations performed during the year in France.

From the facts furnished by the vaccinators the commission concludes, 1. That the varioloid is not a new disease—it was observed in Ancône, in 1551, as reported by Amatus—and described in the same year by Fracastor. Since then it has been noticed by nearly every physician as occurring in all the variolous epidemics, under the name of bastard variola, the variolæ spuriæ of Van Swieten—it has been described by the Ancient Committee of Vaccination from its first creation, and by the American [illegible] writers since 1814. 2. That the varioloid does not prevent [illegible] those who have been affected with it, the small pox and vaccine disease, as has been asserted by MM. Guillou and Gendrin; even its inoculation or contact may give rise to one or other of these affections. MM. Lafont, Gouzy, Dugal, Robert, Honoré and Pazer, have produced by it the small pox, and M. Millon has produced the vaccine disease in individuals who had the varioloid. 3d. That it may communicate itself by contact in persons who have been vaccinated or variolated, but more readily in the latter than in the former, particularly during the existence of variolous epidemics—when it is, in fact, that it appears, and if by the general extension of vaccination we prevent the occurrence of these epidemics we shall probably extinguish the varioloid. 4. Finally, that the varioloid is merely a modified small pox, and always a mild disease. The resemblance between the two diseases is manifest only during the first seven days; at the commencement of the second week the pustules of the varioloid become detached, fall off and the disease is completely finished by the eleventh day. The varioloid seems to be nothing more than an abated small pox, and while the pustule in the latter attacks all the tissues of the skin, in the former it never involves any other than the papillary layer.

17. *Prevention of Cholera.*—From the *Annales de la Méd. Physiol.* of Dr. Broussais we copy the following means recommended for preventing the attack of cholera, during the epidemic of that disease now prevailing in the north of Europe. They are addressed by the medical authorities of the place to the inhabitants of Nijni-Novgorod, and appeared originally in the *Northern Bee.* In general they are highly judicious and equally adapted to prevent an attack of almost every prevailing disease.

"The principal symptoms of cholera morbus are severe pains of the head, constant vomiting accompanied with dysentery, and finally convulsions or spasms of the legs. To preserve themselves from its attack, the inhabitants should attend strictly to the following precautions. 1. To avoid as much as possible the influence of cold, and during the inclement weather which prevails at this season of the year to wear warmer clothing than usual, and to defend the feet and legs with substantial boots. The feet should always be kept dry and the clothes immediately changed when they have been wet with rain. 2. Never to sleep in the open air during the night or day, and especially on the damp ground. 3. To avoid loading the stomach with an excess of food, especially such as is indigestible, consequently it is strictly prohibited to eat apples, prunes, melons, cucumbers, raw turnips, carrots, mushrooms and similar species of food. 4. To make as little use as possible of stimulating drinks and all aliment of a heating nature—especially to abstain from eating garlic. 5. To be very careful to preserve the body perfectly clean, to change the linen as often as possible, and to observe the strictest cleanliness not only in the house but also in the streets, courts and alleys. 6. Never to allow the air to stagnate in any apartment—to prevent this the windows should be left open when the weather is fine, and when it is damp or rainy a fire should be lighted and the apartment frequently perfumed with vinegar, &c. 7. Never to go out in the morning fasting and to avoid excessive fatigue in the labours of the day. 8. As soon as any individual becomes affected with the disease, immediate information is to be communicated to the bureau of police of the quarter in which the person resides, where a physician will always be found ready to afford the proper assistance to the patient. The master of a house who does not immediately communicate such information will incur a very great responsibility. 9. Until the physician [illegible] the patient should if possible be conveyed to a separate apartment, [illegible] to be perfumed repeatedly with vinegar, &c. As a still further [illegible] of precaution the hands should be washed in vinegar every time they have touched the patient or any article he has used. 10. Should the patient die from the want of prompt medical assistance, his clothes and the bed upon which he has lain should be carefully washed and exposed to the air during at least four days before any one attempts to make use of them. The body should always be interred within twenty-four hours after death. 11. If the physician thinks proper to send the patient to the hospital, to have him better attended to, or to observe more effectually the progress of the disease, no pay will be demanded for those in indigent circumstances. 12. The authorities of this place upon the assurances given them by the physicians who have carefully examined the symptoms and progress of the disease which prevails in Nijni-Novgorod, certify to the inhabitants that they will escape the disease by conforming strictly to the above directions, and demanding the assistance of a physician on the first appearance of any deviation from health. An important means of preventing an attack is to avoid carefully the least despondency or chagrin, and on the contrary to preserve a cheerful and tranquil disposition.

IV. THERAPEUTICS.

18. *Antiphlogistic treatment of Cutaneous Diseases.*—In a clinical lecture, Dr. Elliotson threw out some important observations on the antiphlogistic treatment of diseases of the skin. A girl was admitted "into St. Thomas' hospital" with impetigo of her arms and various parts of the body. She had headach, drowsiness, giddiness, and full pulse. She was put on very low diet, and bled from time to time, (the blood being generally inflamed,) while mercury was moderately exhibited. By this treatment, and this alone, the patient was soon cured of her impetigo, without any quackeries of local applications. In another case, where the eruption might be termed eczema, the same treatment was adopted, and the same results ensued. There is no doubt, as Dr. Johnson remarks, that the majority of cutaneous diseases are more than skin deep, and would oftener give way to proper medicines internally exhibited, more especially with low diet, than to the farrago of external remedies.

19. *Treatment of Hemiplegia.*—Dr. Prichard, of Bristol, (Eng.) has drawn the attention of the profession to a mode of treating old and obstinate hemiplegia, and other diseases of the head, which he has found more successful than any other. He properly observes that recent cases are to be treated by antiphlogistics and local depletion, together with a cautious use of mercury; but, after these measures have been pursued for a certain time, depletory remedies can no longer be employed, and counter irritation, with a drain from the vicinity of the disease, is most likely to be beneficial. For this purpose, Dr. P. makes an incision in the line of the sagittal suture, or posterior to that, and fills the incision with peas, which are to be renewed and kept discharging for a considerable time. He has employed this process with much advantage in many other affections of the head besides hemiplegia; more especially in cases of stupor, or coma occurring in the course of severe typhoid fevers. Many years ago, we were in the habit of using a somewhat similar remedy in cases of epilepsy. The head being well shaved, a narrow slip of lytta plaster was applied in the line of the sagittal suture, and when the skin was removed, a cord of silk or cotton thread imbued with blistering ointment, was laid along the above line, and daily renewed. This kept up a constant purulent discharge from the part, and is of extremely easy application.—*Med. Ch. Rev. for April,* 1831, *from London Med. Gaz.*

20. *Ol. Terebinth. in Tetanus.*—Dr. Gibbon, of Swansea, has reported in a late number of the Medical Gazette of London, a case illustrative of the efficacy of the oil of turpentine in traumatic Tetanus. We borrow the following condensed account of it from the Medico-Chirurgical Review: "The patient was a female, who received a wound in the hand, and in ten or twelve days afterwards showed symptoms of tetanus, and this disease soon became established. Dr. G. ordered a liniment of oil of turpentine and laudanum to be rubbed over the greater part of the body. An injection, composed of two ounces of turpentine and one ounce of sweet oil,

with gruel, was administered; and six grains of calomel were ordered every hour. These medicines were continued for several days, with some modifications, and in eight or nine days the disease might be said to be subdued. There was then slight ptyalism established."

21. *Acupuncturation.*—The following case of rheumatism is related in the 7th Volume (p. 799,) of the London Medical Gazette, by Mr. Richard Dix, House Surgeon to the Derby Infirmary: "Joshua Smith, aged 35, admitted November 15th, 1830, into the Derby Infirmary, under Dr. Blent, has suffered from sciatica a year and a half, during which period he has been attended by several medical men. His symptoms are at present very severe; he is unable to raise himself into the erect position, or to walk, without extreme torture; and says, that the pain he has suffered since the first commencement of his complaint has been such as to prevent his obtaining sleep; he reports that he has been frequently cupped, and submitted to the application of moxa; has repeatedly used different baths, and taken a variety of medicines with but little relief. Dr. B. under these circumstances, prescribed acupuncturation, and directed four needles, each an inch and a half in length, to be inserted where pain was principally felt, every other day, and to let them remain an hour. This plan was persevered in till December 6th, when he found himself much improved; his pains were less severe and less fixed, and he could walk with greater freedom. He now wished to try the steam bath, and the acupuncturation was omitted; but after using it a fortnight, and his complaint making no progress, he requested to have the needles again introduced, which was done and continued as before until January 15th, when he found himself quite free from pain, and able to walk with the greatest ease; his general health during this time was good, and the only medicine he took was a few aperient pills to regulate his bowels. He was discharged cured the following week."

In another case, reported in the same paper by Mr. Dix, the patient was admitted on the 25th October, for violent pains in the course both of the sciatic and anterior crural nerves. After using a variety of remedies until the 24th November with but little benefit, acupuncturation was had recourse to. Four needles were introduced, as in the former case, and repeated regularly on each alternate day for three weeks, with progressive amendment; and at the end of that time she found herself perfectly well, and was discharged cured.

Dr. John Tatam Banks, one of the Physicians to the Lowth Dispensary, reports in the Edinburgh Medical and Surgical Journal for April, 1831, five cases of rheumatic and neuralgic affections, in which the same remedy was used with decided and prompt success. Aware that this treatment has been immemorially followed in many eastern parts of the world, in *acute* muscular and nervous pains, Dr. Banks was repeatedly led to try its effects in similar cases; but in no instance was it accompanied with that decided advantage which invariably attended its use in chronic affections. Thus, so far as his experience goes, it accords with Dr. Elliotson's and Mr. Churchill's observations, that acupuncture is chiefly useful in chronic cases. Dr. B. remarks, that, among upwards of sixty cases of chronic rheumatism, not in one has he failed to afford immediate, and in many, permanent relief, by acupuncturation.

In the latest number of the Medico-Chirurgical Review, (for April, 1831,) we find a short notice of a case of sciatica of twelve years standing, cured by acupuncture. It is reported from the Western Dispensary. The patient was an aged female, and the pain was almost intolerable. Colchicum, Dover's powder, and various other means, having proved unprofitable, acupuncture was employed and the pain instantly ceased. There was no return of the sciatica!

22. *Extract from a letter communicated by Dr. T. Harris, dated Washington, April 6th,* 1831.—I send you an interesting case, showing the extent to which blood-letting was successfully used, in the case of a child, labouring under cerebral affection.

I was called at 8 o'clock, A. M. March 27th ultimo, to visit Susan Patten, a well grown, robust child, aged ten years, (who had lately recovered from a severe attack of scarlet fever,) and found her in a state of apoplexy, (supposed to have been brought on by eating an orange,) with stertor, difficult respiration, bloated countenance, skin below the natural temperature, pulse at the wrist depressed, carotids beating with great force. Blood was immediately taken from the arm to the amount of fourteen ounces; and powders composed of calomel, tartrite of antimony, and nitrate of potassa, were directed to be given every hour, until they operated on the stomach and bowels—mustard plasters to the feet. A short time after I left the patient she was seized with strong convulsions, and Doctors Washington and Causin were called, during my absence, to see her. At noon (my second visit) I met Dr. Causin in consultation; all the symptoms were much aggravated: ten ounces of blood were taken from the orifice made in the morning, and leeches directed to the temples and forehead—powders continued every hour. At 3 o'clock we were sent for in great haste, with information that the child was dying in strong convulsions, and the leeches had not drawn. On our arrival there appeared scarcely a ray of hope left; the other arm was tied up, and twelve ounces of blood taken from a large orifice, after which, the pulse became fuller, and the skin warm; cups were directed to the temples, by which she lost twelve ounces more of blood—blisters to the nape of the neck, wrists, and ancles—cold applications to the head—powders continued. At 6 o'clock, P. M., we were informed that all the symptoms had suddenly yielded after the cupping, and the powders had acted well on the stomach and bowels. We soon afterwards saw the patient, and found her calm and rational, with scarcely a vestige of disease left, except a slight subsultus tendinum, which we attributed to the loss of blood, and irritation of the blisters: fifteen drops of laudanum were directed, and she rested well during the night.

Her convalescence, with the aid of cordial nourishment, was unusually rapid, and her system has not suffered in the slightest degree by the loss of blood.

In the space of *eight hours* this child lost *fifty ounces of blood;* and took Calom. grs. xxiv; Tart. Antim. grs. iv; Nitr. Potass. ℈ij., before there was any sensible effect produced.

Your friend, and obedient servant,
H. HUNTT.

To Thomas Harris, M. D., Philadelphia.

23. *Treatment of Lock-Jaw of Infants.*—The following remarks on the causes and prevention of this complaint, by John Hancock, M. D. are extracted from the Edinburgh Medical and Surgical Journal. They will be read with interest. The disease in question is not frequently observed in this country, at least in the middle or northern states, but prevails extensively in the West Indies. It is so frequent and fatal in the colonies of Essequebo and Demerara, that at an average estimate it kills half of the whole number of infants which are born there; and Dr. H. has been informed that nearly the same proportion is destroyed by it in the neighbouring

islands. It has, he continues, baffled the skill of every medical practitioner who has hitherto attempted its cure, at least in ninety-nine cases out of a hundred. "From what I have been informed, it appears to me that the use of cold water is an almost certain prophylactic against the invasion of this disease in the new born infant. It was formerly pursued" "on the east coast of Essequebo, under the care of an Indian woman who acted as midwife, &c. They were in the habit of dipping the infants in cold water, and of throwing it over and washing them therewith immediately after birth, and repeating it once or twice a day, without the occurrence of the disease in a single instance for many years. I can also say from my own knowledge, that the native Indians universally employ cold water with their infants, as described above, and I have never heard of an infant among them that had the infirmity in question."

Dr. H. is of the opinion that the chief and essential cause of the disease is an irritative impression made on the nervous system by the compression of the umbilical chord, caused by the ligature which is applied to it at birth, a custom which, to say nothing of its destructive tendency, is entirely unnecessary and uncalled for. He remarks that the application of turpentine, on cutting the cord, is represented by some to be a preventive of lock-jaw. "It may, when other circumstances are favourable, have some influence, but is not alone worthy of much confidence, as experience has fully proved."

Dr. H. next asks whether the disease may not be prevented by cutting the umbilical chord, and applying a cautery, instead of tying with ligature, according to the Indian practice. "They compress the end of the chord between the fingers for a minute or two, and apply a hot iron or an ignited coal." He thinks well of soft cataplasms applied to the umbilicus; and states that as opium is efficient in the cure of the lock-jaw, it may reasonably be expected to be useful in preventing it.

"It further seems probable that one of the efficient causes of lock-jaw in new born infants lies in the purging plan so commonly pursued. Of this I am fully convinced, since I have found the disease in adults to be constantly aggravated by purging. The plantation, Walton Hall, on the coast of Essequebo, lost many infants under the usual treatment, when about eight years since, a direction paper, from a supposed connoisseur, was suspended at the entrance of the lying-in-house, which specified that the navel should be dressed with spirits of turpentine, and that a certain purging mixture should be given daily. I do not remember the composition; but castor oil was the main ingredient. These directions were followed for several years, during which time most of them(?) were destroyed by locked jaw. This practice was continued until the present manager, Mr. Keane, broke the spell; and since that time, I am informed they have been more fortunate." Purging, Dr. H. thinks, produces these fatal effects, by proving a "fertile source of irritation to the tender bowels of the infant," "directly tending to induce tetanus at a time when the nervous system is already in a state of perturbation from the separation of the umbilicus."

24. *Treatment of Peritonitis.*—The following extract from the report of a clinical lecture delivered at St. Thomas's hospital by Dr. Elliotson will be read with interest, as affording an idea of the mode of treating peritonitis, adopted by the most experienced and acute physicians in London. A patient came in for peritonitis, "and had had the disease, more or less, for seven days. It had come on suddenly after very hard work, so that most probably the man had been sweating profusely and was then exposed to cold. The abdomen was tender over every part.

He vomited, and had had no stool as he said, for three days. He was bled immediately to fainting, and forty leeches were then without delay applied on the abdomen. I gave him a scruple of calomel, as he had had no stool for three days, and half an ounce of castor oil was to be taken every two hours afterwards. He took two or three doses of castor oil, when it was judged right to give him another scruple of calomel, as well as a common clyster and more castor oil in the evening. This was all done, and then his bowels were opened; but it was not effected till he had taken two scruples of calomel, two or three ounces of castor oil, and had had a clyster. Sixteen leeches were applied in the evening, and he was considerably better. However, in the course of two or three days, some tenderness still existing in the abdomen, twenty leeches more were applied. He had a dose of calomel three or four hours afterwards, his mouth became tender; and he was presently well. You may judge of the rapidity of the cure, from the fact, that although the case was very severe, the agony excruciating, he only came in on the 7th instant, and was able to go out on the 24th, notwithstanding these evacuations, and the free exhibition of mercury."

25. *Epilepsy cured by Antiphlogistics.*—In the same lecture Dr. Elliotson describes the following case. The patient was a boy. "He had been ill three weeks. He had a constant throbbing at his temples and in the forehead, and at the vertex. He had tightness of the forehead, as if it were bound by a hoop; a sensation of weight in the forehead, constant vertigo, and some little dimness of sight. His sleep was disturbed by frightful dreams. Sometimes his hands and his feet were benumbed, and tingled as if they were asleep. Besides all these symptoms, which were constant, he had fits of epilepsy. He was in the Hospital, it seems, six years ago, for similar general symptoms in the head, and had faintings, as he termed them; but now, instead of faintings, he had regular epilepsy. I mentioned in a former lecture, speaking of epilepsy, that in its mildest degree it resembles fainting. This last accordingly when he was here before, felt just as if he were only fainting; but this was decided inflammatory epilepsy, and to be removed required only antiphlogistic means.

He was cupped on the occiput to a pint, put on low diet and took mercury—ten grains of blue pill three times a day. On the 20th of December he was bled to a pint, and the 4th (January), twenty leeches were applied to his temples; and these were continued every other day with a cold wash. From the 12th of January twenty leeches were applied every day, to the end of the month; and from the first of February they were applied every other day. He had no more fits; in fact he had none after he came to the hospital, and all the pains in his head diminished so considerably they they were reduced to nothing, and there was no occasion to keep him in the house. Of course he took aperient medicine—house physic every day, according as it was necessary. This was one of the cases of inflammatory epilepsy, and it was subdued by the adoption of anti-inflammatory means."

26. *Treatment of Rheumatism.*—Dr. Lowder of Dover, in a letter addressto the editor of the London Medical Gazette, and published in one of the numbers for March of that journal, offers some interesting practical remarks on the use of colchicum in rheumatism. Dr. L. states that on perusing those cases of this disease which have been treated with the remedy in question, he has very generally remarked, that as soon as purging has been produced, the latter has been discontinued. The consequence, he adds, has been at most a palliation of the disease, and frequently discredit as to the utility of the drug in the treatment of it; whereas the peculiar virtues

of the colchicum are very seldom to be obtained, unless that very effect has been produced. The observation of this fact has led Dr. L. to the combination of this plant with medicines possessing active purging power, and the form which has proved so successful in his hands as well as in that of others, is the exhibition of the vinum colchici in an ordinary saline draught consisting of infusion of Senna with Epsom salts, to the extent of half a fluid drachm every four or six hours, till the bowels are very freely acted on. "This rarely fails in alleviating the pains in a remarkable degree, and if a moderate action be maintained on the bowels by lessening the dose, or observing longer intervals between each, a speedy cure, usually results from this plan. Slight rheumatic pains are often allayed by a single dose, and it rarely happens that a patient is too weak to bear its operation.

The wine employed by Dr. L. is made according to the last edition of the London Pharmacopœia, by macerating a pound of the fresh bulb in twelve ounces of very dilute spirit.

"The cases which have been treated by this plan, have been some of an acute, others of a chronic form; and very seldom has it become necessary to premise either general or local blood-letting, though of course I am far from wishing either of these means to be neglected in cases which require depletion. One particular advantage appears to me to result from this mode of administration, viz. that the colchicum which by repetition so frequently disagrees with the stomach, produces its full effects speedily, so as to render its continued exhibition seldom necessary. Some few persons cannot retain it on their stomachs in any form, and then it might be advantageous to exhibit the hydrocyanic acid either in combination, or some time before giving the colchicum."

27. *Hydrocyanic Acid in the cure of Vomiting.*—Dr. Elliotson, in one of his clinical lectures, recommends the use of prussic acid for arresting vomiting not dependent on inflammation. When this morbid state exists, he relies on antiphlogistics. He remarks, "It has the properties of an anodyne on the stomach particularly, and has a tendency to lessen the morbid irritability which produces vomiting. It is no exaggeration when I state that I have frequently seen vomiting which has lasted for months, cease on the exhibition of the first dose of this medicine. Frequently, however, in cases of spasmodic pain of the stomach, you will find that the first dose, or the second, or even one week's exhibition will not answer the desired end: you will be much more struck with its use in lessening vomiting than in lessening pain in the stomach. But you will find it of no service unless you make a distinction between the existence of inflammation, and the existence of distant causes on the one hand, and mere morbid irritability of the stomach itself upon the other."

The following practical directions will be found useful. "Hydrocyanic acid is a medicine that is exceedingly powerful, and you cannot give it in the same dose when the stomach is empty and when it is full. When the stomach is full the difference of a drop may cause a great difference in the effects. Supposing you are giving three drops, three times a day after meals, it certainly will not be right to give more than one or two drops upon an empty stomach. You cannot, in general, give it on an empty stomach more than once in the day, because when food has been once taken, the second meal comes usually before the stomach is as empty as it was before. On this account, I make it a rule to give it after breakfast, in the afternoon, and the last thing at night. As it is so powerful, you cannot tell before hand the dose that will be borne, and you should begin with a small quantity, such as you know can hardly disagree with the stomach." "You will find this (medicine) of great use for another purpose—for making other medicines set upon the stomach, which would otherwise disagree with it. You may lessen this natural irritability of the stomach so much that iodine, colchicum and medicines of that active description, will frequently sit upon it, whereas they would not unless ten minutes before you gave a dose of hydrocyanic acid. These medicines may remain upon the stomach if you unite prussic acid with them, but it answers better for this purpose if given ten minutes before, so as to come into full operation before the acrid medicines are taken. In organic affections of the stomach, you will frequently find it answer better than any other medicine, to allay the vomiting and pain."

28. *New practice in Acute and Chronic Rheumatism.*—Dr. J. K. Mitchell, of this city, in an essay under the above title, published in the American Journal of Medical Sciences, calls the attention of the profession to a form of disease simulating acute or chronic rheumatism, but depending on an irritation of the spinal marrow. In such cases, he recommends local depletion of blood from that part of the spine which supplies with nerves the parts in a state of active inflammation. Dr. M. gives the details of ten cases, eight of which were treated under his direction after this method at the Pennsylvania Hospital, and were drawn up by Drs. Stewardson and Norris, the resident physicians of that house. In all these cases the plan was highly successful. We extract the following case.

William Anderson, coloured man, a seaman, aged fifty, was admitted into the Pennsylvania Hospital, on the 31st of December, for a chronic rheumatism of upwards of five years duration. Occasionally the disease intermitted, but generally continued to affect him during the cold season. The pain affected at one or at various times, almost every part of the *right side* from head to heel, but had in no case at any period, crossed to the opposite side. Like other cases of chronic rheumatism, it was most severe in cold weather, and when warm in bed. According to his statement he seldom suffered from a winter attack for a less period than three or four months, and the existing exacerbation had lasted only a few weeks.

On the second January, two days after his admission, eight cups were applied to *the back of the neck and left side of the head*, and a powder was taken, consisting of guaiacum and nitrate of potassa, of each ten grains, with directions to repeat it three times a day. On the 3d—"Pain in the *head* and *arm* completely gone—*leg* no better." On the 4th, as on the 3d—a blister to the neck, and eight cups over the lumbar spine. On the 5th, "says the cups almost immediately relieved the pain in the *leg*. He now feels perfectly well."

On account of the extreme rigour of the season, the patient was not discharged until the latter part of February, during which period he remained entirely free from disease.

29. *Extract of Belladonna and Buchu Leaves in Spasmodic Strictures of the Urethra.*—Mr. Edwin Long, in a short paper inserted in the London Medical and Physical Journal, (April, 1831,) relates an interesting case of stricture of the urethra, in which the topical use of the extract of belladonna was attended with the happiest result. This practice has been already resorted to by M. Chevalier and M. Tyrrel, of London, as our readers will find recorded in the same journal; but Mr. Long's case occurred long before the publication of those gentlemen had appeared.

The subject of the case in question was a waterman, aged fifty years. Mr. L. found him in great pain, from an inability to void urine—he had been frequently under the care of respectable surgeons for a *constitutional gravelly complaint;* but they all failed in giving him more than temporary relief, the disease always returning upon exposure to cold, or too much exercise used in walking. He could at that time, only pass his water by drops, and had only voided about a teacupful during the last twenty-four hours. The usual remedies proving of no avail, Mr. L. attempted to introduce a catheter; but found a completely strictured urethra, the instrument not passing farther than about two inches along the canal. Mr. L. succeeded in passing a very small wax bougie as far as the membranous portion of the urethra, but beyond this it would not pass. Bleeding to syncope, hot bath, an attempt at introduction while in the bath, &c. were resorted to during three days, but without success.

"The patient's state now became alarming; the bladder was distended to an enormous size, and I dreaded every moment lest it should give way; I therefore determined, as a dernier resort to puncture it through the rectum. This I was almost upon the point of doing, when it struck me that perhaps, the belladonna, from its peculiar relaxing powers, might exert a beneficial influence; with, therefore, the least possible delay, some extract was sent for, and, after diluting a portion of it with water, it was well rubbed along the whole course of the urethra, and particularly in the perineum. I then took a small bougie, and made a groove along it, as recommended by Mr. Carpue, smeared the extremity, and to the extent of an inch well with the undiluted extract, and without much difficulty, passed it as far as the membranous portion of the urethra, when after remaining a few seconds, I could distinctly feel something give way, and it slipt into the bladder. The water escaped gradually along the groove made in the bougie to the extent of many pints." "It was some days before I could introduce the smallest sized catheter, and never that, so violent was the spasm, without the use of the belladonna."

The cure occupied the space of a twelvemonth. The use of the belladonna occasioned neither incontinence of urine nor any other bad effect.

Mr. Long adds, that he has often prescribed the buchu leaves in stricture and different affections of the urinary organs, and has derived great advantage from them.

30. *Extract of Gratiola (Hedge Hyssop) in Delirium Tremens.*—An officer, thirty-two years of age, of a vigorous constitution, and always in the enjoyment of good health, had been in the habit of drinking very freely for six years. He had lately swallowed extraordinary quantities of brandy. One evening, after having eaten but very little for some weeks, he was attacked with severe headach, which was quickly followed by delirium, and the appearance of spectres before his eyes. These symptoms increased, and the following day leeches were applied to his head, and blisters to the calves of the legs, and a mild infusion of valerian was prescribed. No improvement occurred, and M. Muhrbeck was consulted. He found the patient dressed and up, but reeling here and there, and stretching out his trembling hands towards the objects which, in his delirium, he imagined he beheld. He talked incessantly, and changed his subjects abruptly. Sometimes he sought for arms to repel the enemy: then believed his chamber on fire, &c. He occasionally knew the persons about him, but more frequently he confounded them with the imaginary spectres. His pulse was rapid, small and hard; his looks fixed and vacant; there was an increased and circumscribed redness of the face; tongue red and towards the base covered with mucus. The patient had no appetite, but periodically a troublesome thirst, which he gratified by drinking small beer. Bowels constipated for forty-eight hours. No pain was felt from the blisters, although no dressing had been applied. No sleep since the commencement of the delirium.

Under these circumstances it was impossible to mistake the nature of the disease; it was a sub-inflammatory delirium tremens. M. Muhrbech prescribed immediately three grains of extract of gratiola, with a scruple of tartrate of potash, to be taken in water every hour. At the expiration of seven hours, twenty-one grains of the extract having been taken, the patient became more calm. He was persuaded to go to bed, and in half an hour he fell fast asleep. He slept for seven hours, and awoke the next morning in full possession of his faculties. His bowels were freely evacuated; he remained perfectly conscious, and remembered nearly every circumstance that had happened during the delirium. From this time no medicine was given; he drank some coffee, and arose from bed with little to complain of except debility.

When this case of delirium tremens is compared with others, in which opium has proved efficacious, it must be admitted that the nature of this disease is very variable, and the treatment must necessarily be varied accordingly, if we wish to treat it successfully. We must abstain from administering opium when the character of the delirium manifests an exalted state of the corporeal powers, and when the patient shows less timidity, than excessive and violent paroxysms of passions; when the hands appear to be rather in a sthenic than an asthenic spasm; and where there are general signs of an inflammatory diathesis. In all these cases opium will be injurious, while the extract of gratiola, in general, acts as a specific.—*London Med. and Phys. Journal, from Hufeland's Journal.*

31. *Treatment of Lepra.*—A case of this disease, or rather of psoriasis guttata, which is the connecting link between lepra and psoriasis, came under the care of Dr. Elliotson, at St. Thomas's Hospital, and was mentioned in a clinical lecture delivered by that accomplished physician on the 7th March, 1831, (London Medical Gazette for April 2d.) It was cured, or nearly so. Dr. E. states that the treatment consisted in repeated bleedings, from which the patient always found very great relief, and the exhibition of liquor arsenicalis. He does not know that the latter was the efficient remedy, and from what he saw, he is more disposed to attribute the cure to the bleeding. The patient had no pain in the head; but had lost his memory. This, says Dr. E. he did not mention the first day, but *only* two days afterwards, having very consistently forgotten that he had lost his memory. He was bled on his admission, and also the following day, to twenty ounces; and these two bleedings restored his recollection. He was once afterwards bled to a pint, in consequence of complaining of considerable itching of the skin. He was kept on low diet from the time of his admission till he went away. He was admitted on the 13th of January, and dismissed on the 5th of March. He took the liquor arsenicalis in doses of never more than seven drops three times a-day. He began with two drops, and gradually increased it. The scales had entirely disappeared, but there were still a few red spots in the skin, where the eruption had been. This little redness is likely to remain some time exactly as it does after other cutaneous diseases and burns.

V. MEDICAL JURISPRUDENCE.

32. *Transportation into France of the bodies of persons who have died in the Colonies of Yellow Fever, or other diseases.*—The French minister of the marine has asked for information on this subject from the Royal Academy of Medicine. A committee, consisting of MM. Keraudren, Marc, Pariset, Dalmas, and Goubeiran, conclude their report as follows:

1. The transportation of the bodies of persons dead in the Colonies, may

be authorised when there is no suspicion of a contagious malady prevailing in the colony, or when it has ceased for some time to appear.

2. The transportation ought, however, only to be permitted after the local authority shall have assured itself that the necessary precautions for disinfection and for preserving the dead body shall have been taken under the direction of professional men.

3. The transportation in public vessels ought only to be permitted by the express authorisation of the minister of marine.

4. The transportation in merchant vessels ought only to take place after the authorisation of the minister of the interior; and the landing of the body or bodies in the ports of France, should only be performed after apprizing a sanitary commission or board of health of the circumstance, and having it done under its inspection.

The reporters assume as a fact the contagiousness of the yellow fever, and the probability of its becoming the focus of contagion when transported abroad—all of which argues more the refinement of academicians than the knowledge which should distinguish practical and practising physicians. They recommend that when it is desired by the friends of the defunct to send the body to France, it should as soon as possible be placed at the disposal of professional men, who are to proceed to its *mummification* or embalming. That is, they are to open the cavities, take out the intestines and brain, which are to be buried deep, having previously been surrounded with quicklime. They are then to put the body into a saline solution—preference being given to corrosive sublimate, sulphat of iron, sulphat of copper, or, in general, to the metallic salts, over the earthy and alkaline ones. The solution should be kept up in sufficient quantity, and saturated during the whole time of the immersion of the body by means of a small bag filled with the saline substance, and plunged in the fluid, which should be stirred or shook from time to time in order to be assured of the uniform saturation of the entire mass. Numerous and deep incisions are to be made in the flesh, in order to facilitate the introduction into it of the fluid. After a week's immersion, the body is to be taken out of the liquid, and left two or three days on a hurdle, or, still better, suspended, so that it shall be well dried. After this, all the cavities are to be well filled with powdered quicklime, and the body is then to be put in a lead coffin of suitable thickness on a layer of quicklime, coarsely powdered. The coffin is to be filled with lime, and the lid carefully soldered. The first coffin is to be inclosed in another one of oak, or some other wood of a firm texture.

The following precautions recommended for adoption when a body is to be disinterred, may not be without their value, when this is done with a view to juridical examinations. The committee certainly speak with a due dread of contagious or mephitic exhalations from the dead body. Were they approaching one that had been buried in the city of the plague, they could not have been more careful.

They direct that the mould of the grave shall be moistened with water saturated with chloride of lime. The liquid shall be allowed to penetrate into the ground, and after the moistened stratum or portion shall have been removed, to water the now uppermost stratum as before, and so on, in such a manner that the earth removed shall always have been first wet and impregnated with the chloride. When the coffin is reached, fluid chloride should be introduced into it—the precise mode is not specified: it is to be freed from all adherent earth, and raised by means of ropes, without breaking it. The whole is then to be immersed in chloride of lime, and water. After a half hour's immersion, the body is to be washed with water, and the various steps towards its mummification to be adopted, which have already been detailed.

The reporters admit that the process indicated above to reduce the body to the state of a mummy, is not complete, but rather adapted to the exigencies of the case. In order to succeed in permanently preserving the body, it ought to be kept perhaps two months in a saline liquor, until incisions made in the thickest parts had shown that they were completely saturated with it. To this immersion ought to succeed a complete desiccation in the air, and the precaution of filling the cavities with dressed flax, or, still better, aromatic and resinous astringents. After this the body placed in a leaden coffin in the midst of quicklime, might, for ages, resist the destructive action of time. Commendatory reference is made in a note, to the very complete process of embalming, detailed by M. Boudet in the *Dictionnaire des Sciences Médicales.*

33. *Can a Woman be pregnant without knowing it?*—Mr. Lozes in the *Archives Gen. de Médecine* gives two cases calculated to aid us in the solution of the above medico-legal question. He premises an account of them by the following observations:—

Most women accused of infanticide, allege in their defence, that they did not know of their being pregnant. Many writers on medical jurisprudence have admitted the possibility of such ignorance, in cases in which the woman has conceived during her sleep, or in a state of drunkenness, or in a disease which deprived her of her senses.

Though the movements of the fœtus in utero and the other signs of pregnancy must in the larger number of cases apprise the woman of her true situation, yet M. Orfila cites several accounts of married women, who had been mothers and who had no motive in concealing their pregnancy, reach the full term of their gestation without at all suspecting the state which they were in. Those which I am going to detail, says M. Lozes, and of which I was a witness, will corroborate, if it be possible, the opinion of this learned professor.

Case I. I was consulted in the month of August 1819, by a female to whom I had before rendered professional services, and who placed the most implicit confidence in me. This woman, taller than common, and of a very thin habit, had the abdomen very much swelled, to such a degree that she thought herself attacked with abdominal dropsy. After having examined her with care, I told her that I believed her to be with child: to which, she frankly replied, that she did not think so, and for the following reasons:—She told me that she was forty-six years of age, that she had ceased to menstruate in her forty-second year, that she had entered the house of a bachelor as a housekeeper, that they had always lived in connubial state, always adopting *precautions*, (these were her words), but that for the four years past, when she ceased to menstruate, they thought it unnecessary to adopt these precautions: she also added that she did not experience any of the inconveniences observed by pregnant women, and that she never felt any movements in her abdomen. It is evident from what I have just related, that this woman spoke with frankness, and yet I thought proper to delay for a while prescribing the treatment suitable for the disease under which she believed herself to labour. About six weeks afterwards, I was called to this same woman, and brought her to bed of a well formed child.

Case II. In the month of October 1824, being at Rheims, a physician of that city (Dr. Noel) requested me to go with him to visit a lady who for twenty-four hours past had suffered from violent pains through the whole extent of the abdomen, and which had gone on increasing in spite of diet, semicupia and emollient fomentations. Dr. N. told me that he believed the uterus to be affected; for, said he, during these six hours past, a sanguinolent sanies has been flowing from the vulva. On our arrival at the patient's we found her seated, and only suffering from pain at intervals; she informed me that she was fifty-two years of age, that she had been married thirty years, and had her menses regularly until forty-five years old, and always enjoyed good health, but had never borne children.

As there flowed from the vulva matters tinged with blood, M. Noel solicited the lady to allow me to make an examination, to which she consented, and I own that I was astonished at finding the head of a child ready to pass the superior strait.

When I announced that the patient was about to be brought to bed, both she and her husband were not a little astonished; she who had always been corpulent, assured me that the volume of her abdomen had not been enlarged, and that she had never felt any movements of the child. At all events, I determined, two hours after, to apply the forceps, and this lady was delivered of a living and well formed child, which she suckled herself.

I ought to add in conclusion, that Dr. Noel had only seen this lady once, from the time in which she had been taken with the supposed colics. It was this which I believe led him into the error.

34. *Effects of Moldy Bread on the Animal Economy.*—It is now three years, says M. Chevalier, (Journ. de Chim. Med. &c. Feb. 1831,) since M. Barruel, of the School of Medicine, had handed to him some bread, the like of which having been eaten had caused serious effects: he was requested to examine it in order to discover whether it did not contain poisonous matters. M. Barruel satisfied himself by an examination, that the bread which was *moldy*, did not contain the slightest traces of hurtful substances. He accordingly inferred that the moldiness of the bread was the cause of the sinister accidents which had followed eating it. This opinion is strengthened by the following among other facts.

In 1826, Dr. Westerhoff reported the following cases. He was called to two children of a labourer, whom he found display the symptoms of poisoning. These were less evident in the younger of the two, aged eight years, than in the other, ten years old: the latter had the face red and tumid; excited and haggard countenance; dry tongue, feeble and quick pulse. He complained of violent colic pains, giddiness, headach, and inextinguishable thirst. At one time he experienced a desire to sleep, at another, he wanted to vomit.—After a time the vomiting suddenly came on, followed soon by a copious alvine discharge—he felt himself greatly depressed, was indifferent to every object around him, and dosed from time to time. Some medicines were administered, which soon removed these symptoms, and the return to health was speedy. The other child was also relieved by vomiting.

By inquiries of the parents of these children and of the latter themselves, M. Westerhoff learned that the little sufferers had eaten nothing the evening before but a piece of stale moldy rye bread. The doctor could not draw any inferences from this information; but some days after, watermen engaged in gathering shells for the supply of lime kilns, having made use of moldy rye bread for food, being part of a small supply with which they had provided themselves some days before, were likewise taken sick, and were freed from their distress by vomiting, which supervened in consequence, and all the alarming symptoms disappeared.

M. Westerhoff now thought himself justifiable in supposing that this poisoning might be the effect of bread altered by the *mucor mucedo.*

VI. MATERIA MEDICA AND PHARMACY.

35. *Sialagogue action of Calomel promoted by Acids.*—In the Western Journal for Jan. 1831, Dr. Thomas Townsend, of Ohio, in a letter to Dr. Drake, states as the result of his experience, "that acids of any kind will cause calomel to affect the mouth, when no such effect would have resulted from its use, had the acids been entirely avoided." He is convinced that sulphate of quinia does not, as supposed by Dr. Harty, of Dublin, produce the same effect. For several years he has been in the practice of using the sulphate of quinia pretty extensively during the administration of calomel; but has never observed it to promote the sialagogue operation of the mercurial. He suggests that possibly Dr. Harty may have employed the salt of quinia, dissolved in water by the addition of diluted sulphuric acid; and that the effect alluded to may have been produced by the latter ingredient. Dr. Townsend has long entertained and acted on the opinion, that we may obtain from mercury all the advantages of its cathartic and alterative operation in fevers, without the inconvenience of a sore mouth, by simply directing the patient to avoid any kind of acid; and is no less convinced that we may almost always succeed in producing speedy salivation, by giving acid drinks freely, and at the same time washing the mouth with vinegar or other acids.

36. *Active principle of Elaterium.*—In the Edinburgh Medical and Surgical Journal, for April last, we find a paper by Mr. John D. Morries, presenting the results of his investigations into the composition of elaterium. It is generally known to our readers, that Dr. Paris claimed the discovery of a proximate principle in this substance, to which he gave the name of *elatin*, under the impression that it was the active ingredient of the medicine. Mr. Morries, however, considers it nothing more than *chlorophylle*, or the green colouring matter of vegetables; but this cannot be the case; for, though resembling this principle in the chemical relations stated by Dr. Paris, it was found to possess very powerful purgative properties. We have little doubt that the elatin of Dr. Paris is a mixture of chlorophylle with the genuine active principle of the plant, which Mr. Morries has obtained in a separate state.

The process employed by Mr. Morries for isolating this principle is very simple. The alcoholic tincture of elaterium is evaporated to the consistence of thin oil, and while still warm, is thrown into boiling distilled water: immediately a copious white crystalline precipitate falls, and increases in quantity as the liquor cools. This precipitate is the matter in question. It should be separated by decantation and filtration, and repeatedly washed with distilled water. In this state it is sufficiently pure for medical use; but may be rendered quite pure by repeating the solution in alcohol and precipitation.

"It is a white crystalline substance, of an extremely bitter and rather styptic taste, insoluble in water and the alkalies, soluble in alcohol, ether, and in hot olive oil, sparingly soluble in dilute acids. In a state of purity, it forms microscopic rhombic prisms, striated on the sides, possessed of considerable lustre, and of a silky appearance when in mass. It is decomposed by the strong acids, is fusible at a temperature a little above that of boiling water, and at a higher temperature is dissipated in thick, whitish, pungent vapours, having rather an ammoniacal odour."

It does not appear to be possessed of alkaline properties; and is denominated by Mr. Morries *elaterine*. Its medical effects are similar to those of elaterium, viz. increased secretion of urine, nausea, vomiting and fluid stools. One-twelfth or one-sixteenth of a grain has been found by Dr. Duncan a sufficient dose for an adult. It should be given in solution, as, on account of its difficult solubility in the liquors of the stomach, it is uncertain in its operation in the state of pill. The following formula is recommended. Dissolve one grain of elaterine in an ounce of alcohol with four drops of nitric acid, and give from half a drachm to forty drops of the solution in half an ounce of cinnamon water. A more precise direction would be, to employ a fluid ounce of alcohol, and give from thirty to forty minims for a dose.

The best British elaterium afforded twenty-six per cent. of elaterine, the worst about fifteen per cent.; and a portion of French elaterium which was examined did not appear to contain more than five or six per cent. This great difference in the strength of the drug renders the general substitution of its active principle highly desirable, especially as this is so easily obtained.

In the *Journal of the Royal Institution of Great Britain* for May last, is an account of this same principle by Mr. Henry Hennel. To which of the two gentlemen the priority of discovery belongs, it is impossible for us to decide: there appears to be no doubt that the discovery was original with both. Mr. Hennel obtained the principle by treating with ether, the alcoholic extract of elaterium. The tincture of elaterium upon spontaneous evaporation leaves a mass consisting of crystalline matter mixed with a green resinous substance. Ether dissolves the latter, leaving the crystals in a state of purity. The green matter is obtained by evaporating the ethereal solution: but as ether dissolves also a small portion of the crystalline substance, the two principles are mixed in the residue. Mr. Morries obtained elaterium by a similar process; but was induced to prefer the one before detailed, as more simple and less expensive.

Mr. Hennel obtained from one hundred parts of elaterium, forty-four of the crystalline matter (elaterine,) seventeen of the green resin (probably chlorophylle,) six of starch, twenty-seven of lignin, and seven of earthy matter. He found the elaterium soluble in five times its weight of cold, and twice its weight of hot alcohol.

The green resin upon trial was found to purge actively in a dose less than one-third of a grain: but this effect probably resulted from some of the crystallizable principle with which it was necessarily mixed when procured by the process of Mr. Hennel. This gentleman did not try the crystals with a view to their medicinal effect.

37. *New Crystalline Substance obtained from Columbo—Columbine.*—Mr. Wittstock, of Berlin, has recently succeeded in extracting the bitter principle of columbo in a crystalline form. We derive the following particulars from the *Journal de Pharmacie*, of February, 1831. Columbo is first exhausted by means of alcohol of the sp. gr. 835. The alcohol is then distilled off till the tincture is reduced one-third, or one quarter; and the remainder is allowed to rest for some days. Crystals are deposited, which are to be washed, and subsequently boiled with a little alcohol and animal charcoal. The crystals are thus obtained pure. They may also be procured in a very short time by acting on columbo with ether, (.725) and abandoning the resulting liquor to spontaneous evaporation.

Columbine crystallizes in transparent quadrilateral prisms with a rhomboidal base. It is inodorous and extremely bitter, without alkaline or acid properties, soluble in thirty or forty parts of boiling alcohol, very slightly soluble in water, alcohol, or ether at common temperatures, yet imparting to these liquids a strongly bitter taste. It is also soluble in the volatile oils, and in caustic alkaline solutions from which it is precipitated by the acids. The best solvent of this new principle is acetic acid (1.040,) which takes up about as much as boiling alcohol. Sulphuric acid colours it, at first orange yellow, then deep red; and water precipitates it from the solution of a light rusty colour. Exposed to heat it melts like wax, and at a higher temperature is decomposed, without yielding ammonia. Its solution in alcohol and acetic acid is not affected by tincture of galls, by nitrate of silver, acetate of lead, nor other metallic salts.

The bitter principle of columbo discovered by M. Planche, in 1811, appears to be columbine mixed with a little yellow colouring matter. M. Planche did not procure it in a crystalline form.

38. *Salicine not rendered alkaline by the Acids—its conversion into a peculiar colouring matter.*—The French chemists and pharmaciens still prosecute their investigations in relation to this substance; and although we cannot but entertain doubts of its fitness as a substitute for quinia, it seems incumbent upon us to follow in the footsteps of discovery, till we can arrive at something definite and certain on the subject. It must be confessed, that we should have more satisfaction in this pursuit, were it not occasionally necessary to retrace the ground over which we had already passed. In our last number, we took some pains to condense from the *Journal de Chimie Médicale*, an account of researches into the nature of salicine by M. Peschier, the result of which appeared to be, that this substance, though neutral in its ordinary state, is rendered alkaline by the action of acids, with which it then combines to form crystallizable salts. We have now to announce to our readers, from the first number, for 1831, of the same Journal, that the accuracy of the experiments of Peschier, and consequently the correctness of his inferences, is altogether denied by M. Braconnot, who maintains, that salicine is not rendered alkaline by the action of acids, either in a concentrated or diluted state. "It is impossible for me," says M. Braconnot, "to agree in the opinions of M. Peschier, or even to admit the slightest facts contained in his note." Our readers by recurring to the last number of our Journal, will see the results obtained by the latter chemist, and we shall now state as briefly as possible, those obtained by the former from similar experiments.

When salicine is moistened with nitric acid, instead of forming a nitrate, it is decomposed, and yields carbazotic acid, united to a peculiar substance, which M. Braconnot considers analogous to the resins. Treated with diluted sulphuric acid, it is dissolved unchanged, and the process by which M. Peschier obtained the sulphate of salicine, yielded to M. Braconnot the salicine itself in a state of great purity. When added to concentrated sulphuric acid, it is instantly decomposed, and imparts to the acid an intense bright red colour, which undergoes no change by the action of time. Concentrated acetic acid, boiled upon salicine, and then evaporated to dryness, effects no change in this principle, which re-appears with all its properties after the evaporation. Muriatic acid, at common temperatures, dissolves it more readily than water, and by spontaneous volatilization, yields it unaltered; but by the aid of heat, this acid converts it into a kind of resinous matter. In no instance, did M. Braconnot succeed in communicating alkaline properties to salicine, or in combining it with acids, so as to form saline compounds.

M. Braconnot succeeded in isolating the colouring principle into which salicine is converted by sulphuric acid, and found it to be without taste, and insoluble both in water, and alcohol. In the solid state it is brittle, and of a brownish black colour; but becomes bright red by the action of mineral acids, and of a beautiful deep violet colour by that of the alkalis, without, however, being dissolved, either by the acids or by alkaline solutions. The name of *rutiline* is proposed for it by its discoverer.

Salicine in the bark of the Poplar.—M. Braconnot, having successfully employed the bark of the *Populus tremula*, or European aspen, in the treatment of various kinds of fevers, was induced to submit it to an experimental analysis, which resulted in the discovery of *salicine* among its constituents. He afterwards found this principle in the bark of the *Populus alba* and *Populus Græca*. The last of these species has been introduced into the U. States, and is well known by the name of Athenian poplar. Our native aspen, the *Populus tremuloides* of Michaux, the *P. trepida* of Willdenow, is not the same with the European.

The process by which Braconnot separated the salicine from the bark of the aspen is given in the following words in the *Journal de Chimie Médicale, No.* 1, *Janvier*, 1831. "A decoction of the bark is prepared, to which subacetate of lead is added, and the limpid and colourless liquor which remains after the precipitation of the excess of lead by sulphuric acid, is evaporated. Near the end of the process, a little animal charcoal, previously washed, is added, and the liquid is filtered while hot. Upon cooling, it deposits salicine in a crystalline form."

39. *Remedial effects of the root of Artemisia Vulgaris or Mugwort.*—We have been long accustomed to receive with great distrust the favourable reports of the effects of newly discovered medicines, or of old medicines revived. Nevertheless it is our duty to record the information which reaches us, and leave our readers to ascertain its value by the test of their own experience. The observations which follow have reference to the *Artemisia vulgaris* of Europe. There is an American plant which goes by the same name in the systems of botany; but Nuttall believes it to be a distinct species from the European; and though the former may perhaps deserve a trial, no unfavourable influence drawn from its failure can be considered as conclusive against the efficacy of the latter. We derive the following statement from *Hecker's Annalen* of August, 1830, through the *Revue Médicale* of January last.

The German physicians formerly made extensive use of the root of mugwort as a remedy in epilepsy; but it fell into disrepute, and was almost forgotten, when attention was again called to it by Dr. Burdach, of Triebel. Very recently Dr. Wutzer has employed it with much success not only in epilepsy, but also in other spasmodic affections of children, and in intermittent fevers. Dr. W. considers it one of our best antispasmodics, possessing peculiar properties not to be found in other medicines of the same class. As a remedy in epilepsy it is inferior to none and superior to most in efficacy. It is especially useful in this disease occurring in young persons before the age of puberty, particularly in females. In cases which from organic derangements, or hereditary predisposition, are incurable, the medicine is often a good palliative. Its operation is much more effectual in the spasmodic complaints of children dependent upon mere disorder of the nervous system, and it is borne by the child at the breast, when the dose is properly proportioned, as well as by the adult. There are scarcely any circumstances which contraindicate the use of the medicine in affections purely spasmodic. The expressed juice of the root cures mild quotidian and tertian agues.

The root which is gathered in spring or autumn, should be dried in the shade, and without washing, so that any loss of the essential oil, which is the active principle, may be avoided. Fifty pounds slightly dried, furnished upon distillation two scruples of a volatile oil, having a light brown colour, and exhaling in a high degree the odour of the fresh root, which bears some resemblance to that of opium. This oil, upon standing, divides into two portions, differing in colour and consistence, one of which floats upon the top, is of a deep brown colour and thin consistence; the other is thick, of a dirty yellow colour, almost gelatinous, and when agitated divides into numerous little grains—the *stearopten* of Berzeleus.

When the root is powdered for use, the cortical portion detaches itself from the interior ligneous portion, which should be rejected. The powder may be taken in substance in the dose of 25 or 30 grains, to be gradually increased to 45 or 50 grains for young adult subjects.

VII. SURGERY.

40. *Extract from a letter just received by one of the Editors, from Dr. Alban G. Smith, of Danville, Kentucky; giving an account of a case in which the operation of Lithotrity was successfully performed.*

I hoped to be able to send you half a dozen successful cases of lithotrity by this time; but I have not completed more than one, although I have several on hand.

A boy, five years and seven months old, came to me from Lexington. Finding, after some experiments, that I could not conveniently dilate his urethra to a size sufficient for my instrument of two lines and a half, I got a very ingenious young man to make me one, with my assistance, of two lines. On Friday, I introduced the instrument and opened it; but, as he was not sufficiently secured, I did not take up the stone. On Saturday, I secured him so well with bandages, &c. that I took up the stone, and broke it, as I supposed, in two pieces. It measured, on the *pince*, seven lines. On Sunday, finding but little irritation, I took up another of the pieces and broke it up. On Tuesday, I took up a small piece and bruke it. On Thursday, I took the last piece and broke it up.

Each operation lasted from seven to ten minutes. He generally passed off the fragments before midnight; and then rested well. He played about as other boys do; and except during part of one day, manifested no unusal irritation. I made two efforts to discover if any fragments remained; but could find nothing. His bladder became more capacious the two last operations.

I have a number of cases on hand. I shall go to Louisville to-morrow. I have to see four or five cases on my way. Most of the cases that have presented themselves will require considerable time.

41. *Excision of the Joints.*—From the 6th Report of the Edinburgh Surgical Hospital from August 1830 to 1831, published in the Med. and Surg. Journal for April, we learn that Mr. Syme has cut out four other diseased elbow joints, making in all fourteen cases. In one case, a boy, eight or nine years old, had his joint very much lacerated five or six weeks previously; the flesh being extensively torn and bruised. The limb assumed a bad appearance, and as amputation or excision was deemed necessary, the latter was executed. On the 14th of December 1830, nearly the whole wound had cicatrized, and the arm was becoming very useful; motion existing at the elbow.

In a second case of abscess and ulceration of the joint in a patient aged twenty-eight years, excision was performed on the 6th of September; the patient recovered rapidly, was dismissed the 27th of October, and when lately seen, was in good health, having his arm very moveable and daily increasing in strength.

In a *third* case, the operation was fatal. It was the case of a boy, aged thirteen years, with diseased elbow joint of long standing, in which there was much inflammation of the soft parts and great disease of the ulna, the whole spongy structure of which was filled with gelatinous matter.

The fourth case was a boy, aged 13 years, with a diseased joint of long standing. He was admitted the 1st of October and was dismissed well on the 27th of October.

42. *Partial Amputation of the Foot.*—Mr. Syme relates two cases of this character—one was formerly detailed and is now referred to, as proving that, a very simple artificial foot being procured, "the patient can walk with perfect ease to herself, and hardly any perceptible difference in her gait from that of other people." The second patient was operated on for caries of the tarsal bones, os astragalus, and os calcis excepted. Amputation was performed of the foot in September, and the patient was dismissed quite well on the 13th of November.

43. *Foreign bodies in the Trachea and Bronchi;—Tracheotomy.*—A learned and valuable paper is published in the April No. of the Ed. Med. and Surg. Journal, by Dr. John Browne of Dublin, which was read before the Dublin Chirurgical Society, December 9th 1829. He observes that Dessault had shown, that the trachea and bronchi did not participate in the great irritability of the glottis, and experiments and observations have demonstrated that bodies, when not angular or irregular, would be ejected from the bronchi when an opening was made in the trachea. Hence, it was natural to suppose that bodies which were irregular, sharp, angular, or impacted in the bronchi, might be removed by suitable instruments. This has been found practicable. An interesting collection of cases, in which various foreign bodies had entered the trachea and bronchi, giving rise to distressing and, in some instances, fatal affections of the respiratory organs, in some of which relief occurred by severe coughing, and in some by means of an operation, while in others nothing effectual was attempted, is given by the author. He finally concludes,

"1. That the existence of foreign bodies in one or other bronchus, can be ascertained by the stethoscope, by the pain and other uneasy sensations; and by the history of the case.

2. That since the effect of such bodies in these unnatural situations, is to excite inflammation and abscess, most commonly ending sooner or later, in death, it is incumbent on us to attempt their extraction with the least possible delay.

3. That small round bodies move freely from the bronchi to the trachea, particularly when an opening has been made in the latter, and that the best mode of promoting their expulsion is by such an operation.

4. That when sharp and angular substances have descended into either bronchus, they generally become fixed there, but may be extracted by forceps or other suitable instrument passed through an artificial opening in the trachea.

5. That the sooner such an operation is undertaken, the greater will be the chances of success, as the presence of the extraneous substance must give rise to congestion and inflammation in the lungs, and to various cerebral affections, all depending on the mechanical interruption to the natural course of the circulation.

6. That although occasional recoveries have ensued, subsequent to the ejection of foreign bodies from the bronchi, such cases are rare; and the greater number of persons so circumstanced have died at longer or shorter intervals."

It is to be remembered that the right bronchus is much larger than the left, and goes off more transversely. Foreign bodies are probably, more frequently lodged in the right than in the left bronchus. If a long slender forceps be passed into the trachea, without giving it any particular direction, it almost invariably passes into the left bronchus from its greater obliquity.

44. *Paracentesis Thoracis for Empyema.*—Mr. Wm. Cleland relates, in the Edinburgh Journal, the case of a girl, seven years of age, on whom he operated for effusion of pus into the left pleura. The left side was enlarged, the heart pushed to the right side of the sternum; no respiratory murmur on the left side, and on drawing the fingers along the space between the fifth and sixth ribs, a sort of ring or aperture was felt. The respiration was difficult, and the child looking anxious and miserable. The operation was performed on the 24th of June, by means of a lancet; the incision was half an inch in length; about 14 or 16 ounces of a dirty brown coloured fluid, of the most nauseous odour, spouted out with violence; *a tent was introduced* and a bandage applied around the thorax. In an hour, the breathing was easier, and the pulse, 130 previously to the operation, had fallen to 100. In the evening the chest was again distended, and the abdomen tumid. The tent was removed; fifteen ounces of fœtid matter was discharged; the tent was not replaced; a roller was applied from the pubes to the axillæ. With few bad symptoms, she continued to improve. By the middle of July, the left side of the chest was more contracted than the right. Some sinuses formed and were troublesome—her general health improved very much. She passed the winter without having a cold. A small ulcer about the size of a pea remained as late as August 1830, but the patient enjoyed good health and was fatter than before her illness. The pulsation of the heart continued to be felt only on the right of the sternum. *The respiratory murmur was distinct* over the whole lung, but weaker than on the right side except at its upper part, where it sounds strong and healthy.—*Nov. 2nd*, 1830.

45. *Perforation of the third lobe of the Prostate Gland.*—Mr. R. A. Stafford of London relates two very interesting cases, demonstrative of what may be accomplished by the judicious and cautious employment of the stilette and canula (uretrotome) in obstructions of the urethra. We have not room for details, suffice it to say, that in one case, an impermeable stricture more than two inches in length was divided without any bad consequences by the lancetted stilette. This was effected in a very gradual manner, so that four months were occupied in effecting this object. After the division of the stricture, the patient suffered exceedingly from partial retention of urine, and the catheter could not be introduced beyond the prostate gland, but was there obstructed by what was deemed the third lobe of this body. As the symptoms were urgent, the uretrotome was again introduced to the obstruction, (8½ inches,) the lancetted stilette was thrust forth, and the instrument passed cautiously, in as near a line as possible with the natural channel, for nearly two inches farther. The stilette was now 11 inches, but no urine followed. This being withdrawn, a catheter, assisted by the finger per anum, was successfully introduced into the bladder, and upwards of three pints of fœtid urine were evacuated. The operation was performed with little pain or hemorrhage: a silver catheter was left in the bladder, and by the usual attentions, the patient completely recovered, so that he could void his urine as well as ever he did in his life. The swelling of the prostate gland subsided.

In the 2nd Case, there was a closure of the orifice of the urethra, but an opening connected with the canal immediately beneath it; there was an impermeable stricture about half an inch anterior to the bulb, and anterior to this, a false passage made some years ago by caustic, and which often bled profusely. The body of the prostate is slightly enlarged. For upwards of thirty years, the evacuation of urine has been very difficult, and for five or six years, the water has only passed *guttatim* with much straining. If the straining be very violent, there is great pain, and the neck of the bladder appears to close up, so that the urine is not evacuated. By means of the uretrotome, the urethral strictures were cautiously divided in the course of four or five weeks, but the catheter would not pass the prostate, and although the urine flowed in a larger stream, there was the same difficulty in expelling it. As the catheter could be introduced eight inches, and its point felt at the prostate gland, the obstruction was referred to the third or middle lobe; and as the symptoms were not very urgent, three or four punctures only were made in this body, no uneasiness was thus excited; in three days, the punctures were repeated, and again, after the same interval. At the fourth visit, the patient was found much relieved; he could now make water better, and the bladder had gained more power: a steel sound was introduced into the bladder, and afterwards, a catheter. In about two months the patient was perfectly well.

Mr. S. thinks that in this case, the middle lobe was so enlarged as to operate as a valve at the neck of the bladder, and that from repeated punctures in its substance, the swelling of the part went down, but that it is impossible to say how this was effected.

46. *Burns and Scalds treated by Nitrate of Silver.*—We have formerly quoted the opinions of Mr. Higginbottom on the use of nitrate of silver in various irritable inflammations, and our experience is in its favour. He recommends it in burns and scalds. In the April number of the Edinburgh Medical and Surgical Journal, there is a case detailed of its efficacy in an extensive scald of the back, hips, thighs and abdomen of a child five years old, in which large portions of the cuticle were removed. The solid lunar caustic was once applied to the whole surface, and at the time gave but little pain. Part of the surface was afterwards freely exposed to the air, and that portion on which the body rested was lightly covered with rags spread with the *neutral* ointment(?). In a quarter of an hour, the child fell asleep and had no pain or constitutional disturbance afterwards. Some of the eschars were adherent; where the ointment was applied, there was profuse serous and afterwards lymphatic secretion, but no suppuration. On the 10th day, the little patient was out of doors, and on the 12th, at school, every part being quite healed.

47. *Apparatus for Fractures of the Os Femoris.*—We have received a communication from Thomas S. Williamson, M. D. of Ripley, Ohio, read by him before the fifth District Medical Society, at their meeting in November last. The author notices some of the modern methods of treating fractures of the thigh, but observes that they are too complicated for general practice, especially in the country, where few conveniences are at command. He describes an apparatus which he believes to be effectual in fulfilling the requisite indications. We shall present an extract from the paper in which the instrument is described, not having room for the author's cases and observations.

"The apparatus consists of four pieces of timber, which may be made most conveniently of a plank an inch or inch and a half in thickness. They should be from two to three inches in breadth, according to the strength of the wood and weight of the patient. Two of the pieces should be a foot, or fifteen inches longer than the patient; the other two need not be more than two or three feet in length, and, if the patient is small, eighteen inches in length will be sufficient. These must be placed in the form of a parallelogram, crossing each other at right angles near their ends, where they must be firmly attached to each other by a few large nails, or, if these are not at hand, by a wooden pin of sufficient size, passing through both pieces where they cross. These timbers, thus attached, should form a frame of such dimensions as readily to contain the patient as he lies extended in bed, and the bar corresponding to the soles of his feet, should be six or eight inches distant from the same. Over the frame must be laid a sheet or other piece of linen, of proper size, and strength sufficient to bear the weight of the patient without yielding much. This must be drawn tight and sewed all round with a large needle and strong thread or twine. This done, an opening, six or eight inches in diameter, must be made through the sheet near the centre, through which the patient's urine and fæces may pass. The frame is now ready to receive the patient. It is the simplest modification of what is termed Earl's bed, and is highly necessary, if we would pay any attention to the comfort of our patients, not only in cases of fractured femur, but in every other affection in which a patient cannot be taken out of bed without great pain. The frame being ready is to be placed on the floor or ground near the patient, who is to be carefully moved on to it, and so placed that the anus may correspond to the opening in the sheet, and the feet, when extended, may be several inches within the inferior bar of the frame. In this bar, on a line with the axis of the injured leg, a hole must now be bored with an inch or three quarter augur. To this hole, a pin of strong wood must now be fitted, which should project about six inches above the bar which receives it. A handkerchief or other proper bandage is now to be drawn round the ankle, over the instep, and tied under the sole of the affected foot. With this, extension must be made till the limb is restored to its proper length, when the band must be so secured as to maintain the extension by tying firmly round the pin before spoken of, at a sufficient height above the bar which receives it, to prevent the extension from pressing the heel against the sheet on which the patient lies. Whilst the surgeon is making extension by drawing the foot, an assistant should make counter-extension by holding the patient firmly by the shoulders, so as to prevent his body from being drawn with the foot. As soon as sufficient extension is made to restore the limb to its proper length, it generally assumes its proper position in every other respect; but if this should not be the case, the surgeon, after securing the extending band, so as to maintain the proper degree of extension, can readily adjust whatever else may require attention by a proper application of his hands. When this is done, an assistant should hold the foot and leg steadily in position, whilst the surgeon applies small bags filled with bran, chaff, or any other similar substance, so as to support the foot, and prevent any thing like rotation. It is most convenient to have four of these bags, about the diameter of the leg, and greater at the part which lies opposite to the foot. One on each side should extend from a little below the foot to the calf of the leg, and another from this a little above the knee. They should not be fitted so tightly but that they may be readily moulded to the form of those parts of the foot and leg with which they are to lie in contact. Before applying them, a little tow, wool, or cotton, should be passed under such parts of the limb as are not in contact with the sheet on which it lies, so that every part may bear its due proportion of the weight, and thus none will become sore from being unduly pressed.

For the most part the mere weight of the patient's body and superior extremities pressing on the sheet on which he lies, will be sufficient to make the necessary counter-extension, and prevent any shortening of the limb after it is once sufficiently extended, and the bone is properly set.

But if there should be any doubts on this subject, any desirable degree of counter-extension may easily be made by passing a handkerchief round the patient's back and shoulders, and tying it to a pin, which may be for this purpose inserted in the head bar of the frame, on a line with the axis of the patient's body; or, if the patient is a child, and so not willing to have the arms in any manner confined, sufficient counter-extension may be made by placing the frame so that the feet will be a little higher than the shoulders, and children can be very comfortable placed in this position.

As soon as the bands for extension and counter-extension, and the bags of bran, are properly adjusted, the frame may be lifted by the ends, the patient on it, and laid on bed, or carried to any place to which it is desirable to take the patient. Two or more persons may lift it, and so long as the frame continues firm, and it is maintained in any thing like a horizontal position, the patient is in no danger of suffering from the inequality of their motions. Many of the advantages which are thus gained by our being able to transport the patient from one place to another, even to the distance of miles, without danger of increasing the pain, either at the time or afterwards, will be manifest to every one. But the great importance in respect of cleanliness, of being able to remove the patient from bed, and placing him or her over a suitable vessel for receiving the fæces, &c. can only be fully realized by those who have had some experience in broken thighs, or other similar affections.

The other advantages of this apparatus over Dessault's, and others in common use, are—

1st. It is simple, easily obtained and applied.

2d. It leaves the injured part of the limb naked, so that it can, at any time, be compared with the other; and if any derangement should occur in the absence of the surgeon, it may readily be seen by any of the attendants who may choose to examine the limb, and every facility is afforded, not only for observing the slightest displacement, but for remedying it with the least possible pain to the patient; and also for applying any kind of dressing which may be necessary or proper for reducing inflammation, easing pain, or healing the wound if the fracture should be compound.

3d. Lastly, we are entirely freed, by using this apparatus, from the danger of excoriation and ulceration in the groin and other parts, on which counter-extension is usually made, and which, in children and females, is sometimes the source of much pain to the patient and embarrasment to the surgeon; we also avoid the necessity of exposing to view the upper part of the thigh, which, by some of our female patients, will not be regarded as a matter of small moment."

Our readers will readily understand the above description; and we would merely observe, that, at least two very serious objections can be urged against the mode of maintaining counter-extension: the shoulders are moveable points, and hence can afford no uniform or permanent resistance to the extending force; and secondly, there are no means provided for preventing the lateral inclination of the pelvis on the injured side, which almost invariably occurs, and by which the upper fragment is depressed, and of course the limb shortened.

VIII. MIDWIFERY.

48. *History of a case of Inversion of the Womb successfully treated—Read before the College of Physicians by Ch. D. Meigs, M. D. June 28th,* 1831.

On Saturday, the 18th of June, 1831, I was called in great haste to see

Mrs. S., in Seventh near Lombard street: the husband told me that his wife was in childbed, the child born, but that something terrible had happened. Supposing that there might be inertia with some of its consequences, I requested him to get half a drachm of ergot and bring it to me at his house, whither I immediately proceeded.

Upon entering the room, I was struck with the ghastly appearance of the woman, who was lying on her back near the foot of the bed, bloodless, pulseless, with arms and legs perfectly cold, the eyes staring wildly, the respiration short and frequent, while the body was agitated with that distressing jactitation which is the familiar attendant of imminent death from hemorrhage. She looked like one in the last agony.

Supposing from her appearance that she must be labouring under the effects of loss of blood, I immediately placed my hand on the hypogastrium to feel for the uterine globe; but instead of that I found a hollow, a sort of vacuity and want of resistance which at once excited my fears for the uterus—and upon carrying the hand to the vulva, the whole truth of her terrible situation became instantly clear. My hand was in contact with a large pear shaped mass, the smaller end of which being attached to the vulva, permitted the larger end to hang down more than half way to the knees. It was the inverted womb, the fundus or lowest part of which was covered with the placenta, much torn and defaced, yet still firmly adherent, while the sides and cervix were still lined by the membranes of the ovum.

As soon as I discovered the nature of the case, I sent a messenger to Professor James, with urgent request for his immediate attendance.

There was a great quantity of blood upon the bed, and so complete was the inversion of both the womb and vagina, that nothing more than a shallow cul-de-sac was found betwixt the labia and the tumor.

I learned, subsequently, that Mrs. S. had had two children before, on both of which occasions her accoucheur had been obliged to introduce the hand for the removal of the placenta, which adhered with preternatural force, and, as she feared that the same occurrence might again take place, she bespoke for this occasion, the aid of a midwife, as likely to prove more gentle and patient in the management of the placenta. Anxious in regard to this part of the labour, she inquired soon after the birth of the child, whether the placenta was adherent, and was told by the midwife that it was not.

Soon after this, she began to scream violently and beg the woman to let her alone, asserting that there was another child, for something very large was coming from her. It seems that, regardless of her cries, which were *shocking*, the force was continued and the placenta brought through the vulva, but as it was firmly attached to the fundus uteri, the whole womb followed the afterbirth and was turned completely inside out.

Doubtless the midwife is innocent as far as any evil intention was concerned in the case, and such a case reads a most useful lesson upon the heedless manner in which the afterbirth is often withdrawn from the organ, an operation that ought never to be done without a hand being first placed upon the hypogastrium.

In the present case the nature of the accident was not discovered by the accoucheuse, who remained at the foot of the bed more than an hour, under seemingly great embarrassment, frequently observing in a whisper that it was the strangest afterbirth she ever saw, and doubtless making attempts to remove what she still took to be a very strange afterbirth. How much, and how strongly she pulled at the organ I cannot say, but it must have been with great force, or the inversion of the vagina would not have been so complete.

After about an hour spent in these attempts, and when the woman had become quite anemic, she desired that a physician should be called to her aid. Such is the history of the case antecedently to my arrival.

I gave Mrs. S. a quantity of strong brandy and water, and, being fearful of augmenting the hemorrhage, should I detach the placenta, I endeavoured to revert it by pressing my fingers against the fundus, but the increased thickness of this part derived from the adhesion of the placenta, prevented me from indenting it, and while reiterating these attempts, Dr. James arrived.

After hearing a short relation of the case, and examining her actual condition, he was kind enough to endeavour to reinstate the organ, but after some unsuccessful efforts, he advised that the placenta should be removed, which was, accordingly, done, but not without some difficulty, in consequence of the closeness of the union.

The placental membranes having been taken away, I, at Dr. James's request, repeated the attempt to revert, and having indented the fundus with the point of the finger, I added the force of the second, and then of the third fingers, and finding that they were advancing upwards in the sort of *cul-de-lampe*, I bent them so as to present a rounded knob, composed of the second phalanges of the four fingers. By the exercise of a great deal of force, I drove the whole mass back into the inferior strait of the pelvis, along the excavation, and to the superior strait. I think the fundus did not begin to return through the os uteri until the fingers were rather above the plane of the superior strait, and the vagina firmly stretched. At this period, I felt as if the force made use of might possibly lacerate the vagina without effecting the reversion, and accordingly requested Dr. James to press the ulnar edge of his hand firmly down on the abdomen, so as to shut up the strait, yielding his hand as mine should advance. This being done, I carried the fingers upwards, and came in contact with the Doctor's hand, placed as above; pushing it away as my own advanced, I soon had the pleasure of announcing to him that the organ was reinstated; but there was no contraction.

The woman now swallowed half a drachm of ergot, and in consequence thereof, or of the presence of my hand in its cavity, the womb began to contract with considerable force, and as I continued, by Dr. James's advice, to retain possession of the cavity, the pains became more and more considerable, reducing the cavity until I found the hand gradually forced completely out of it, into the vagina.

The uterine globe above the pubis was now firm, and of a proper size—the woman's pulse began to be distinguished at intervals, and as she took freely of brandy and vol. alkali, with small doses of laudanum, it became, in the course of an hour, quite distinguishable, but exceedingly rapid and tumultuous. She now vomited very freely, which was repeated at intervals. For an hour, she fainted almost every eight or ten minutes, exclaiming, I am going now—I am going. I took all the pillows from under her head, with a view to keep as large an amount of blood in the brain as possible. For the purpose of confining the blood also to the great vessels, I secured the abdomen with a very tight bandage, after laying compresses of diapers over it.

I gave her some bread and milk boiled, and directing a continuance of the julep and brandy toddy, left her at 8 o'clock, in a tolerably fair way. Being prevented by a call to another patient, from returning at 9 o'clock, as I intended, I committed her to the care of Dr. George Fox, after having explained the nature of her previous state: to the assiduous care of this gentleman, who remained by her bedside until 3 A. M. she is greatly indebted for her safety, for her pulse flagged so much, that he gave her in the course of the night, large quantities of brandy, unmixed, and applied sinapisms very freely; and the Doctor thinks that without such stimulation, she must have sunk before morning.

On Sunday she remained very weak and low, with a rapid, but fuller pulse: proper nourishment was allowed, she had very little lochia; which became pale in the course of the day. The womb firm, and of a just size, to be felt above the pubis.

On Monday and Tuesday, continued to improve, takes nourishment, but is kept in a horizontal posture. To day, Thursday 23d, she seems very cheerful, the pulse still frequent, but she is evidently improving in all respects. Dr. Fox allows her a soft boiled egg, with tea and bread. The bowels have been moved, and she passes urine well, no tenderness of the abdomen.

Sunday, 26th, is still kept in a horizontal posture, but is quite cheerful and anxious to rise.

In relation to this case, I beg leave to subjoin a few remarks—

In the Compend. System of Midwifery, 2d Edit. p. 512, Dr. Dewees has the following observation on inversions of the womb.

"It is said, the uterus has been reinstated after complete inversion, but of this we may justly entertain strong doubts," &c.

I am particularly pleased to be able to add the testimony of Dr. James to my own, as to the completeness of the inversion in Mrs. Steward's case, as well as its complete reinstatement; so that, although Dr. Dewees does not believe that a case ever has occurred, wherein the womb was restored after complete inversion, yet as he strongly advises an attempt to be made in all such cases, I feel assured, that he will rejoice to learn that it has now been undoubtedly effected in this instance.

I beg leave to observe also, notwithstanding what occurred in this instance, that when the inversion is complete, it would always be well to make an attempt to revert the organ without removing the placenta should it still be attached—and this for the purpose of saving so much blood to the patient as would most probably be lost by its separation, but if it could not be readily returned with the placenta, it should be removed and the attempt repeated afterwards.—We are directed to press the womb in the hands gently so as to reduce its size. This appears to me to be a bad direction. No case could occur of inversion in a contracted womb—the accident is one that accompanies inertia after delivery—the womb is affected with after pains, and is flaccid alternately. Now it would be much easier to revert an inverted womb while flaccid than while rigid with its muscular contractions—and I very well recollect to have found the womb in the case under consideration, to contract and relax as it would have done in the abdomen—it was smaller and larger by turns. Now to handle it, to squeeze it for the purpose of making it smaller, would be to irritate it and make it rigid—under which circumstances it could not be reverted, nor even indented.

It would be best to let the womb be perfectly still—to watch the moment when it is most relaxed, large and flaccid, and then after indenting the fundus, carry the fundus rapidly through the corpus and cervix into the abdomen.

IX. CHEMISTRY.

49. *Action of Chlorine on Bile.*—The Journ. de Chimie Méd. for March, 1831, gives the following extract from a memoir of M. Charles Matteucci, of Forli, in the Roman States.

When a current of chlorine is passed through bile, this liquid loses its colour and smell, and passes successively from azure-blue to dark yellow, and finally to milk-white. In the mean time, a white matter is deposited.

Bile, thus altered, dissolves almost completely in cold alcohol. The white matter does not dissolve, and may be collected on a filter; it is, however, soluble in ether. It contains the fatty and colouring matters of the bile, altered by chlorine.

The alcoholic solution being evaporated gives off vapours of muriatic acid, deposites crystals of chloride of sodium, and becomes reduced to a matter, which, when warm, is liquid like turpentine, but which hardens by cooling into a substance having all the characters of resin.

This resinous substance is of a dark yellow colour, somewhat bitter, solid and friable at common temperatures, and electrical by friction. It is very soluble in alcohol and ether, somewhat soluble in hot water, but very sparingly so in cold, forming with this liquid a kind of emulsion. All its solutions redden litmus. Heat decomposes it, giving rise to azotized products, in which respect it differs from common resins. At the same time it gives rise to an empyreumatic oil, and a liquid containing traces of muriatic acid.

This substance possesses the properties of an acid; for it combines with bases, from which it may be precipitated in the form of white flocks. Sulphuric acid, by the assistance of heat, decomposes it, with disengagement of sulphurous and carbonic acids and nitrogen, and formation of a liquid of a handsome red colour, which becomes converted, by a continuation of the heat, into a brilliant charcoal, easily detached from the sides of the tube in which the experiment is made. Neither the muriatic nor nitric acid has any action on it.

From these characters, the author considers the product resulting from the action of chlorine on bile, to be the same as that discovered by M. Braconnot in the picromel of M. Thenard. He gives it the name of *chloro-bilic* acid.

Chloro-bilic acid, when subjected to ultimate decomposition by means of oxide of copper, gave of

Carbon	118
Nitrogen	87
Hydrogen	15
Oxygen	46
	266

Chloro-bilic acid combines readily with metallic oxides. It forms with soda, potassa, lime, and ammonia, soluble compounds, from which the acid is precipitated by the smallest addition of another acid. In consequence of its feeble capacity of saturation, its combinations have always an excess of base.

According to M. Matteucci, the green saccharine matter of bile may be obtained very easily, by mixing sulphuric acid with it, agitating the mixture until it becomes yellow, and allowing it to stand for twelve or fifteen days. At the end of this time, a yellow substance, which the author believes to be the chloro-bilic acid, is deposited, and the liquid becomes of a handsome green colour. This is decanted, and neutralized with lime by the assistance of heat. It is next filtered, and on evaporation, the green saccharine matter is obtained.

The same matter may be obtained more easily by neutralizing the green liquid with potassa, filtering, and evaporating to dryness, and then treating the dry mass with alcohol.

This substance, in whatever way obtained, is of a handsome green colour, and possesses a sweetish taste, like that of liquorice. It is very soluble both in water and alcohol. Chlorine destroys its colour entirely.

The constituents of bile are, therefore, according to M. Matteucci, a green saccharine substance, a fatty matter, and chloro-bilate of soda mixed with other salts.

49. *Vanadium, a newly discovered Metal.*—At a recent sitting of the French Institute, M. Dulong read a letter from M. Berzelius, which gives the following account of the discovery of a new metal by M. Sefström, of Sweden.

M. Sefström, Director of the School of Mines of Fahlun, being engaged in examining a specimen of iron remarkable for its softness, detected the presence of a substance different from all known bodies, but in so small a quantity, that it would have required much time and expense to separate a portion of it, sufficient for a thorough examination. The iron in question was extracted from the ore of Taberg, in Smoland, which likewise only furnished traces of the new substance. M. Sefström having observed that the cast iron, before its conversion into wrought iron, contained much more of the new substance, was led to suppose that the scoriæ formed during this operation would contain it in still greater abundance; and an examination of them verified his conjecture. Having, in this way, got a sufficient quantity of the new substance to study its properties, M. Sefström repaired to the house of Berzelius, in order to complete his examinations.

The name provisionally given to the new metal is derived from *Vanade*, the appellation of a Scandinavian deity.

Vanadium forms with oxygen an acid and an oxide. The acid is red, pulverulent, and fusible. After fusion, it takes the form of a crystalline mass on cooling. It is somewhat soluble in water, reddens litmus, and forms yellow neutral salts, and orange-coloured bi-salts. Its combinations either with acids or bases, when dissolved in water, possess the singular property of frequently losing their colour suddenly, which they do not regain until they are brought back to the solid state; but if they are now redissolved, they preserve their respective colours.

Hydrogen gas reduces *vanadic* acid at a bright red heat, and a coherent mass is obtained, possessing a feeble metallic lustre, and forming a good conductor of electricity. As yet, however, it is not certain that the reduction had been complete.

Vanadium, thus obtained, does not combine with sulphur, even though heated to redness in an atmosphere of that substance.

The oxide of vanadium is brown, approaching to black. It dissolves readily in acids. Its salts are of a very deep brown colour; but upon the addition of a little nitric acid, effervescence occurs, and they become changed into a substance of a beautiful blue colour.

Hydrosulphuric acid, and even nitrous acid, convert vanadic acid, when in combination with another acid, into this blue substance, which appears to be a combination of vanadic acid with the oxide of vanadium, analogous to certain combinations which tungsten, molybdenum, iridium, and osmium are capable of forming. The acid and oxide of vanadium give rise, besides, to green, yellow, and reddish combinations, all soluble in water without the assistance of any other acid.

Oxide of vanadium, provided it is formed in the moist way, is soluble in water and in alkalies. The presence of a salt in the water renders the solution impossible; and on this fact may be founded a mode of precipitating the oxide.

Aqueous solutions of vanadates are decomposed by hydrosulphuric acid, which converts them into sulpho-salts of a handsome red colour.

The chloride of vanadium is a colourless, very volatile liquid, which gives off when exposed to the air a dense red vapour. The fluoride is sometimes red, sometimes colourless, but always fixed.

Before the blow-pipe, vanadium, like chromium, colours the flux of a handsome green colour.—*Journ. de Pharmacie, March*, 1831.

The following additional information respecting vanadium is taken from the Annales de Chimie, for January, and the Journ. de Chimie Méd. for March, 1831. This metal has been discovered by M. Wöhler in the brown lead of Zimapan in Mexico, first brought to Europe by M. de Humboldt. It was in this mineral that M. Del Rio of Mexico, more than twenty years ago, supposed he had discovered a new metal, to which he gave the name of *erythronium*. The reality of the discovery was brought in doubt by Collet-Descostils, (Ann. de Chim., t. liii., p. 260.) and afterwards by Del Rio himself, (Gilb. Ann. Bd. 71, s. 7.) M. Sefström has, therefore, rendered a service to science, which is so much the more important that he discovered the new metal, under difficult circumstances, in the product of a European mineral, and that he is the first who has placed its existence beyond all doubt.

50. *Indian Corn as Aliment.*—In the Archives Générales for Jan. 1831, an outline is given of a report made on a memoir, by M. Carron, on Indian corn as an aliment. The author considers the yellow corn as much preferable to the white. The Piedmont corn is much better than that of Savoy, and three pounds of mush (polenta) made by mixing these two kinds of corn, he deems more nourishing than the same weight of brown bread. M. Carron has succeeded in making a very good bread of corn by mixing it with a small quantity of potatoes. He praises the nourishment for infants used in Italy, made by boiling Indian meal with milk and adding grape confection (raisiné). According to him, the diarrhœas, &c. attributed to the use of Indian mush, depend, either upon its faulty preparation, the immature state of the corn, or on its having been previously torrified, an operation which destroys its gummo-saccharine principle. To the damaged state of the corn, or its faulty preparation, the author attributes the visceral obstructions, the bleaching (l'étiolement), and the disease called pellagra, which for some years past has afflicted Italy. He denies that the use of this aliment diminishes the strength, and sustains his opinion by referring to the fact of the broad shoulders and athletic forms of the porters of Italy, who live almost exclusively on mush.

[We give the above as the opinions of a European writer respecting an important indigenous plant of our country. No American requires any arguments to convince him of the highly nutritious qualities of the farina of Indian corn. Jefferson, indeed, supposed it to be even more nutritious than wheat.—Eds.]

51. *Sulphate of Copper in Bread.*—At the meeting of the Society of Pharmacy of Paris, on the 8th of Feb. 1831, M. Chevallier made a report on a memoir by M. Kulmann on the adulterations of bread. In this memoir it is stated that the addition of a portion of sulphate of copper to the dough, so small as the eighth of a grain to the pound, gave it the property of fermenting considerably and of absorbing a larger quantity of water. These effects cease when the proportion of the salt is increased.

The members of the society present were generally of opinion that the presence of this salt in so minute a quantity in bread would not prove injurious to health; but nevertheless that the practice should be discountenanced as furnishing bread, containing less alimentary matter in a given weight than that made in the ordinary way.

52. *Gold and Silver of the Uralian Mountains.*—M. de Humboldt rece read a memoir to the French Institute on the geology, &c. of central A Among other facts, he stated that the extent of the auriferous and plati ferous region on the Eastern declivity of the mountains is more than twe degrees of latitude; and its annual product in gold and silver, includ the product of the silver mines of Oltai, more than four millions of doll

The total product of the washing of gold from these mountains fr 1814 to 1820, together with the product of several auriferous veins, w about seventeen millions of dollars. The largest masses found were of twenty-four pounds, another of sixteen, and a third of thirteen pound

MISCELLANEOUS.

Dispensatory of the United States.—John Grigg proposes to publi in the course of the ensuing season a work under the above title, b George B. Wood, M. D., and Franklin Bache, M. D.

The work will give a complete view of the present state of Mate Medica and Pharmacy, and is designed especially to illustrate the Phar copœia of the United States.

Since the publication of the last number of this Journal we have recei ed, from publishers, several works connected with the science of medicin Most of those works consist in republications of English editions, whic have been reviewed in some of our preceding volumes, or are noticed i the present number.

The unusual size of this number has compelled us to omit, together with several articles we had prepared for the miscellaneous department, a notice of one or two of the aforesaid works, the list of which we here annex.

Tweedie on Fever—from Carey & Lea.
Select Medico-Chirurgical Transactions—from Carey & Hart.
Tate on Hysteria—from Carey & Hart.
Thompson on Inflammation—from Carey & Lea.
Teale on Neuralgia—from Carey & Hart.
Gross on the Bones, }
Smith on Fevers, } been reviewed—from Carey & Hart.
Pharmacopœia of the United States—from the Committee of Publication.

ERRATUM

In the last Number.

In the Review of Smith on Fever, page 401, line 11, for *situation*, read *constitution*.

from P.B. Godda

THE

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ART. X.—PHYSIOLOGY OF THE FŒTUS, LIVER AND SPLEEN.

The Physiology of the Fœtus, Liver and Spleen. By GEORGE CALVERT HOLLAND, M.D. &c. &c. *London* 1831, *pp.* 262.

THIS is an interesting volume, the production of a gentleman already advantageously known to the profession as the author of a work published about a year since, under the title of "An Experimental Inquiry into the Laws which regulate the Phenomena of Organic and Animal Life." Dr Holland has a *turn* towards physiological inquiries, and is, undoubtedly, an ingenious experimentalist. In the present, though particularly in his first production, this talent has been conspicuously displayed, and he has thereby established for himself a name, and assumed a distinguished rank among the physiologists of his country. But while we concede to him thus much; while we grant that he has succeeded in reducing many of the phenomena of life to certain laws discoverable by observation; or, in short, that he has applied, in many instances, the true Baconian mode of philosophizing to physiology; we must be allowed to express our opinion that, in the work before us, to say nothing of its predecessor, with which we have nothing to do on the present occasion, Dr Holland has indulged a little too much in speculation, and has neglected to consult writings of easy access, several of which have been furnished to the medical world by some of his contemporaries at home. From these he might have discovered, that views which he therein presents as novel, are of much more ancient origin than he seems to imagine, and have been opposed and defended by several successive writers.

But on this subject we shall have occasion to refer in a more detailed manner when, in noticing the contents of the present volume, we shall touch on the points to which the above remarks are more particularly applicable.

Dr Holland introduces his subject by an inquiry into the causes that have retarded the attainment of sound principles in physiology. This introductory chapter is carefully written, and contains many sensible remarks. No one, we feel convinced, will refuse to admit with Dr H. that an inquiry into the nature and extent of those causes which impede or arrest the progress of science must be a subject of interesting speculation, not only to the philosopher, but to every one who is engaged in the pursuit, or interested in the advancement of useful knowledge. Such an inquiry, he remarks, if skilfully conducted, by detecting the fallacy of assumed principles and exposing the errors of popular systems, would diminish that undue veneration for antiquity, and that servile reverence for great names which have so frequently prevented the discovery of truth: by thus liberating the mind from the restrictive bonds of prejudice, it would leave us free and unincumbered to pursue the onward course in the paths of scientific research. It is only, he continues, when the fetters of authority and system have been cast off by a powerful and superior understanding, that any great advances have been made in the spacious fields of science, in which, instead of exploring new tracts, the philosophers of our age have generally been content with walking in the footsteps of their predecessors, or, if they have dared to depart from them, it has too often been under the misguiding influence of some imaginary notion, rather than the sure direction of those sound principles which were likely to lead to any valuable discoveries. To this cause Dr H. very justly attributes the slow progress of physiological investigation. On no other principle can we, he thinks, account for the extraordinary fact, that so many centuries elapsed before any knowledge had been acquired of the circulation of the blood, the connexion between the powers of the mind and the development of the brain, the exact states of the body which promote or retard the generation of animal heat and the true mode in which the fœtus is nourished. These secrets might have been made known, long before the period of their actual discovery, by any man of ordinary capacity; if, instead of being misled by prevailing opinions, he had carefully examined the phenomena which nature presented to his view. Any thing intensely bright is seen more distinctly by the eye through a coloured medium; but the objects of mental contemplation are apt to be distorted and rendered obscure, when received through any other medium than that of plain and simple facts, actually ascertained to exist by careful and repeated experiments. He who recollects this truth will not be surprized at the slow progress of the science of medicine. (p. x—xi.)

Dr H. is of opinion that amongst the moderns, speculation too frequently occupies the place of experiment, that the facts are disregarded in an eagerness to establish some favourite hypothesis; and that the instructive voice of sage experience is not heard amidst the loud exclamations of noisy partizans, contending for the truth of new theories and ever varying doctrines. "The ancients were generally more practical, the moderns are more theoretical; the former may therefore be sometimes safely followed, the latter seldom;" but he admits that it would be dangerous to rely implicitly on either; the ideas of the one being often crude and ridiculous, those of the other visionary or imperfect. Medicine, he contends, has made but little progress, because those who have devoted themselves to the study of it, have, unfortunately, not followed the same scrupulous method of inquiry, nor examined with the same impartial scrutiny the nature of existing doctrines, as the cultivators of moral philosophy, who, in a wise disregard of opinions and systems, however consecrated by age or revered by mankind, have fearlessly pursued their researches into the *arcana* of nature with a spirit of patient, sober and severe investigation, determined to be influenced in their decisions only by reason and fact; and who in consequence have widely extended the domain of that science, and brought to light many important truths.

Physicians have either wholly received or rejected theories after a superficial consideration; and have in either case tended to retard the progress of medical science, which is frequently as much injured by sweeping away indiscriminately what is supposed to be false, as by adopting, without mature deliberation, what is conceived to be true.

The following extracts will be read with interest.

"Though, amongst the numerous writers on medical and physiological subjects, many have frequently been misled by false theories or too prejudiced an attachment to favourite systems, and none, perhaps, have avoided falling into considerable errors, much useful information, and many excellent observations are contained in their works: for, whilst the experience of one has furnished valuable facts, the imagination of another has occasionally thrown out brilliant and happy thoughts, which, if duly considered, may eventually lead to the detection of gross absurdities, and the establishment of sound principles. The science of medicine has, however, been retarded in its advancement *by the multiplicity of its expounders*. It is more easy to write on this science than almost on any other, and the inducements to attempt it are greater. To compose a work even of a very humble kind on natural or moral philosophy, requires superior intellectual powers, strengthened by much previous study, and long exercised in abstract speculations, or experimental pursuits, whilst such a work, even when creditably executed, does not bring its author either much reputation or profit: but the medical practitioner, with a very ordinary understanding, few acquirements, and but little mental application, may easily compile a treatise on some branch of his profession, availing himself of the labours of his predecessors, and drawing his matter from the existing stores of medical knowledge, which it is only necessary that he should arrange in a new form, and slightly modify, to secure both considerable fame and emolument."

"Another cause, which has retarded the progress of medical knowledge, is *an almost exclusive attention to experiments*.

"However valuable the important discoveries which have been made by a recurrence to experiments, much error has arisen from the false inferences that have been frequently drawn from them,—inferences which, though really the mistakes of erroneous observation, have been regarded as incontrovertibly correct.

"It is very allowable to doubt the truth of propositions supported by argument alone, but it seems an act of bold temerity to call in question facts, or obvious deductions from them, said to be proved by direct experiment; and hence, whilst the former are fearlessly controverted, the latter are generally received with too easy an assent.

"The physiologist, in his researches into the secrets of the animal frame, often forms very erroneous conclusions, in consequence of that narrowness of observation, which is contracted from a long and exclusive attention to experiments. The human body is a complex machine, consisting of different parts, so intimately connected together, and all so essential to its well-being, that no inference can be safely drawn from a separate examination of one of them, without maturely considering the exact relation which it bears to the rest.

"In endeavouring, therefore, to ascertain the real office of any organ, it should be recollected that, though it possesses individual properties peculiar to itself, it has not an independent existence, but is connected by nerves and blood-vessels with other organs, and is more or less affected, according to its nature and susceptibility, by every cause that produces bodily excitation or derangement. Expertness of hand, and an accurate acquaintance with anatomy, though very valuable acquisitions, are yet of less use to the experimental physiologist than a philosophical enlargement of mind, united to a well-grounded knowledge of the different branches of physical science. To one possessed of these requisite qualities, a single experiment, by leading to the discovery of some general law of the system, may furnish matter for the basis of an original and important theory, whilst it will suggest no new ideas to another, of more contracted mind, and less information, whose whole life is, perhaps, spent in the business of mutilation and destruction, without his discovering one useful or practical truth. Experimental physiology, like microscopical investigation, has a tendency to exercise the hand and the eye, to the neglect and prejudice of the understanding. A habit of observation is indeed acquired, in the investigations connected with this pursuit; but it is observation of a very minute description, confined to the examination of particulars unconnected by any common principle, rather than directed to the scientific arrangement of them under any general heads.

"The pure theorist, though possessed of the most brilliant talent, is too bold a speculator to be implicitly trusted, and the pure experimentalist, who does not possess superior abilities, is scarcely more to be relied upon. The one misleads by his ardent spirit of generalization, the other by his confined attention to particulars; the observations of the latter, founded on these particulars, being often as incorrect as the speculations of the former. It is seldom that minuteness of observation, and the comprehensiveness of mind, which is capable of taking general and enlarged views, are united in the same individual."

With these long extracts we take leave of the introduction, and pass to the body of the work; begging, at the time, our readers to bear in mind the censure Dr H. has passed on the moderns for their proneness to theory, in order that they may see how he follows his own precepts. It is extremely easy for an individual to declaim against theory, and to stand up as the advocate of unadulterated facts; but it generally happens, that when he undertakes to write even an *experimental essay* on any subject connected with pathology or physiology, he indulges in the same propensity he has so severely censured in others, and presents his readers with more theory than facts. Medical literature furnishes us with innumerable examples of this, among the most conspicuous of which is the course pursued by the celebrated Baglivi; and we are not acquainted personally with a single advocate for pure facts, who is not as much a theorist as those who freely allow the necessity of theory. If the former present pathological facts or physiological experiments or phenomena, they very naturally endeavour to explain their rationale, without appearing to perceive that, by so doing, they theorize, and do exactly what others whom they brand as theorists have done. If they do not perceive it, others do; and they certainly have not the right to assume that their explanations are the only true ones; for, on examination, it will be found that though they may differ from those of the theorist, they are, nevertheless, as speculative, and often as distant as them from the truth. We have not made these remarks to censure Dr H. for amusing *his* readers with a little theory; but merely to prepare *our* readers for an illustration of that inconsistency so often met with in medical writings—a philippic against theory and theorists, followed by a great deal of speculation with few or no facts to support it.

Dr H. remarks that he will not trouble the reader with an enumeration of the different opinions which have been advanced concerning the office of the spleen; for, as he does not propose to attempt a refutation of them in detail, it is not necessary to state them. He notices, however, the opinion of Dr Stukely, whose work was published in 1723; of professor Moreschi of Pavia; of Sir Everard Home, Saunders, &c. and, of course, like every other writer who has a doctrine of his own to propose, finds more or less fault with all of them. He particularly opposes the theory of Sir E. Home, who believes that the function of the spleen is to secrete a fluid necessary for digestion; and he justly remarks that, if that be the function of the organ in question, it is difficult to explain how the excision of the latter in dogs and other animals, as performed by Malpighi, Assolant, Saunders, &c. was not attended with serious effects. With the doctrine of Stukely and Moreschi, Dr H. is rather better pleased. They both inculcated that "*the spleen is an organ appropriated to the digestive function, supplying blood according to its demands.* When the capacity of the stomach is enlarged by the food which it received, it is supposed to press upon the body of the spleen, so as to diminish the accumulation of blood in the splenic artery, and thereby to augment the action of those vessels which are distributed upon the stomach."

Dr Holland remarks, in reference to this doctrine, that the necessity of a vigorous circulation during the process of digestion can scarcely be called in question; but that if the spleen performs the vital office to the stomach, as contended for by the aforesaid authors, we should find a difficulty in explaining how the latter organ acts when deprived of this auxiliary. This difficulty, indeed, was so well felt by Moreschi, that he gave little credence to the possibility of such an occurrence in the human frame, and observed that this taking place in the inferior animals, cannot be considered as any objection to the action of the spleen in the human subject.

"If authorities were required to prove, that the human spleen has sometimes been excised, it would be easy to bring forward instances. Several cases are on record, where part of the organ was excised, and the remainder was returned without injury to the individual; and it is mentioned by authors of credit, that accidents have occasionally happened, in which the spleen has protruded and has been removed with safety, the vessels having been previously secured by ligatures.* It has also been stated, that in one or two remarkable cases, no spleen whatever was found; and, in many persons, it has been observed so diminutive, as to preclude the idea of its exercising that function with which physiologists have endowed it."

Dr Holland remarks that the physiology of the liver is almost as little understood as that of the spleen. Much, he adds, has been written on the function which it is supposed to perform, viz. the secretion of bile; but it is still undecided whether this be effected by means of venous or arterial blood. If by the latter, for what end is so much venous blood directed to the liver? and, if by the former, the difficulty still remains in accounting for the great quantity of oxygenated fluid which is transmitted to it. "In whatever manner the subject is viewed, according to the established notions of the day, the physiology of the liver is involved in obscurity."

Dr Holland's first object is to disprove the generally received opinion that bile is secreted by venous, and not by arterial blood. His principal reason for adopting this view of the subject may be summed up in the following facts. 1. That if we examine other organs, we perceive the *activity* and extent of their functions are proportionate to the quantity of arterial blood which they receive. 2. That it is impossible to discover one organ which is in the least directly indebted to the venous system for the performance of its office. 3. That a case is on record which shows an unusual distribution of the vena portæ, this terminating in the vena cava inferior without its contents having previously circulated through the liver; although the secretion of bile seemed to be as regular and perfect as in those individuals whose organization is natural. 4. To these, Dr H. adds a fact derived from comparative anatomy, viz. that a liver exists in all the *mollusca*, and is very large; but "that this class has no gall bladder. The liver is supplied with blood from the aorta, and there is consequently no *vena portarum*." "Here," says Dr H. "we observe a secreting organ, whose function is exclusively performed by arterial blood, a fact which strengthens the opinion, that the secretion of bile is the product of arterial and not of venous blood."

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* Works of Baillie, by Wardrop, Vol. II. p. 235.

Having gone through these preliminaries, and shown conclusively, at least as he supposes, that bile is secreted by arterial and not by venous blood, Dr H. next proceeds to inquire into the functions of the liver and spleen. We present his views on this subject in his own words.

"The function of the spleen, as well as that of the liver, independently of the secretion of bile, is considered a *diverticulum* of the system. If the veins which form the vena portæ had passed directly to the vena cava inferior, a thousand accidents, arising either from mental or corporeal disturbance, would have continually placed the life of an individual in imminent danger. Every passion, whether of an exciting or depressing character, and every general and local disease, if severe, whether chronic or acute, would have been liable to have deranged the lungs and heart. I have already endeavoured to show, that passions of a depressing nature bring the blood in greater quantity than usual from the inferior and superior extremities, and also from the surface of the body to the chest; and I have also stated, that the abdominal viscera participate in this engorgement.* Since the body is continually liable to such changes, baneful effects would follow, unless nature had provided organs, whose situation, function, and organization, enable them to diminish the burden imposed upon those, whose constant and almost regular action is indispensable for the maintenance of life. This object is beautifully answered by the liver and spleen. The organs within the chest must be regarded as possessing vital functions. If the lungs were surcharged with blood, or in a condition approaching to it, the properties and distribution of this fluid would be immediately disordered, and with this primary derangement every part of the body would quickly sympathize.

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* See Experimental Enquiry, Chap. xv.

"The liver and the spleen, from being placed close to the thorax, are calculated to relieve the congested lungs and heart, or rather to protect them from sudden and violent commotions; and are also favourably situated to protect in the same manner the stomach, whose action is scarcely less vital.

"If we investigate the manner in which venous blood circulates in the liver, we shall be convinced that its minute divisions, on this principle, are well calculated to facilitate the object that nature has in view. The vein ramifies through every part of the organ, in the way in which arteries divide themselves: if it had not been thus distributed, the liver would not have contained a quantity of blood equal to what it does at present; nor would it have been retarded, as it is, by the nature of its circulation, in its flow to the lungs, which appears an indispensable provision in order to protect these organs.

"The spleen is, by some, supposed to be formed of vessels; by others, to be chiefly composed of cells; but, whichever opinion we adopt, it is manifest, that its structure is particularly well formed to allow of considerable congestion or enlargement. In those instances, in which the circulation is very much disordered, and in which we have determination of blood to the internal organs, the liver and the spleen are occasionally so much augmented in size, that they cannot be supposed to contain less than many pounds of blood. If these organs had been absent, or incapable, from structure or situation, of receiving an extra proportion, this quantity would have been added to that which is already retarding the action of more vital organs, the consequence of which would be the total cessation of life. We may complain of the enlargement or disorganization of the liver and spleen, but we must remember, that although we occasionally suffer from the diseased conditions of these organs, we are preserved from many acute affections, which would seldom allow man to arrive at maturity, unless the constitution were endowed with instruments fitted to bear oppression. If we consider the temperaments most subject to derangements of these parts, the diseases which affect very much the internal viscera, and the influence of external agents upon the body, we shall probably observe more clearly the consistency of the view proposed to explain the functions of these organs."

"The variations in the temperature of the atmosphere, from heat to cold, are calculated to disorder the circulatory system, particularly in warm-blooded animals. The feathered tribe are very generally affected by the severity of winter, although nature, at this season of the year, provides them with a plumage better fitted than the one they possess in the summer, to enable them to endure the bleak winds and long cold nights; yet thousands perish from their inability to withstand the inclemencies of the weather: whilst the appearance of those that survive is haggard; their cheerful sŏngs are no longer heard, and their sufferings are indicated by their silence. But, after the genial excitation of a few warm days, they are continually flying about on buoyant wings, and, by their early notes and sprightly motions, intimate the restoration of those vital energies which invariably return with the blooming flowers, and the genial rays of spring. If, however, the warmth and brightness of these sunny days are chilled and overcast by a return of frosty and tempestuous weather, both the animal and vegetable kingdoms again droop. Plants have vessels, through which sap, in the vernal season, is abundantly distributed to the young buds and tender leaves; but if the frosts continue severe, this fluid is repelled or prevented from flowing, and vegetation consequently loses its healthy and natural vigour. The causes which produce these effects are not partial, but general; their influence is modified by one circumstance alone—the peculiar state of the object on which they act.

"The circulation of blood in animals is liable to be excited or depressed by heat and cold in the same manner as the flow of sap in plants; and unless nature had provided organs capable, from their situation and constitution, of readily receiving a considerable portion of the blood that is determined internally, the lungs, the heart, and the chylopoietic viscera would be too much oppressed by an inordinate quantity of this fluid to exercise their usual functions. It frequently indeed happens, although these organs relieve the oppressed state of the animal system induced by cold, that the powers of life are too much enfeebled to continue in operation. But if there were no organs of this kind, the vital parts of the system would be more frequently disordered, and the effects of their derangement would be of a more fatal character. Mangili and Paris, observing the veins and the glands of the throat large and congested in hybernating animals during their repose, endeavoured to account for the phenomenon of torpidity on hypothetical principles, founded on these appearances, which I have proved to be incorrect in the Experimental Inquiry;* having shown that they may be easily explained by taking into consideration the influence of cold on the animal body, and the tendency of the blood to flow to those parts of the system in which it meets with the least resistance. An attention to the same causes will also furnish a satisfactory explanation of the apparently great capacity of the congested state of the veins, as well as that of the glands. Since these are so much affected by the determination of blood to the internal organs, it cannot surely be denied that the liver and spleen are at the same time engorged to a degree proportionate to their organic capabilities, which are very considerable; and, if this be granted, it must be admitted, as a necessary consequence, that were there no such organs as these, the whole of that blood, which is transmitted to them, would be received by other parts of the system under circumstances that would most probably destroy the possibility of a renewal of the suspended powers of life. Fishes, from the variations of temperature to which their element is subject, and the different degrees of pressure from the weight of water that they bear, according to the various depths to which they descend, require to be furnished with a liver and spleen, or at least with one of them, in order that their oxygenating, propelling, and digestive organs may not be unduly oppressed by changes occurring in the circulatory system. In short, wherever a sanguiferous system exists, and is liable to be affected by mental or physical causes, or by both, there is evidently an absolute necessity for organs capable of receiving the greater portion of the blood, which is occasionally determined internally in an undue proportion. It therefore seems consistent with analogy and facts, to regard the liver and the spleen as *diverticula*, though in ascribing this office to the former, I by no means intend to question its importance as a secretory organ."

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* See Chap. VII.

It will be easily found from the preceding extracts, that the author contents himself with asserting what he thinks to be the functions of the liver and spleen, without adducing a single experiment or pathological fact, or a single argument of much weight in favour of his opinion. This, for a man who presents himself as the champion of fact and the opponent of modern theorists, is hardly pardonable. Nor are we less disposed to censure Dr H. for the tone of assurance with which he presents, as original, a doctrine to which he has no more claim than he would have to that of capillary attraction, or gravitation. If Dr Holland will take the trouble to open Senac's edition of Heister's Anatomy, published in 1752, he will find the following passage, which proves that the diverticulum doctrine, at least in what relates to the spleen, is somewhat older than himself. "Schelhammer, and with him Lister, and some of the late English anatomists besides, as Purcell, &c. suppose it (the spleen) to be a kind of diverticulum for the blood, in the more violent commotions." By a reference also to the Edinburgh Medical and Surgical Journal for January 1822, Dr H. will find a paper by Dr Thomas Hodgkin on the use of the spleen, in which the same doctrine is proposed and defended. Finally, by extending his researches into the medical literature of this country, he will discover that in 1807, consequently before Dr Hodgkin published his essay, the late Dr Rush advocated, with his usual ingenuity, a similar view of the subject. But on this publication of our countryman we are willing not to insist; since a lecturer on physiology in the *Sheffield* Medical Institution is not obliged to be acquainted with the opinions and works of American physicians.

The second part of Dr Holland's work is devoted to an inquiry into "The Physiology of the Fœtus." It is divided into eleven chapters, treating of the following subjects. 1. The various opinions entertained concerning the nourishment of the fœtus. 2. The primary and secondary functions of life. 3. The nature of fœtal life. 4. The function of the placenta. 5. Temperature of the fœtus. 6. The origin of the liquor amnii and meconium. 7. The nutrition and peculiarities of the fœtus. 8. The brain, the spinal cord, the stomach, the liver, the pancreas, and the intestines, are not essential to fœtal life. 9. On the functions of the liver, the supra-renal capsules, the thymus, and the thyroid glands in the fœtus. 10. The mode of nourishment in the oviparous and ovoviviparous animals. 11. The influence of the imagination of the mother on the development and constitution of the fœtus.

Having devoted a considerable portion of the space allotted to this article to an analysis of our author's views concerning the uses of the liver and spleen, we shall be forced to say very little on each of the topics embraced in the second part of the work before us. The following extract contains a summary of Dr Holland's opinions in relation to the primary and secondary functions of life.

"1. That the principles which regulate the nutritive process in the animal system are of the same kind as those in the vegetable.

"2. That the exuberance of vitality in infancy and youth, and its deficiency in old age, are the effects of the same physical causes, which give foliage and blossoms to the plant in summer, and which prevent the development of them in winter.

"3. That the means which nature employs to effect these various purposes differ only in degree.

"4. That the ascending sap in plants is similar to the chyle in animals, unfit for nourishment until it has been acted upon by atmospheric air; and that the descending sap, from the nutritive properties which it possesses, bears a striking resemblance to the arterial blood, the great source of vital actions.

"5. That the animal system cannot derive nourishment from any substance, unless it passes through the lungs; and still further, that the extent and perfection of assimilation will, in a great measure, be regulated by the extent and perfection of the chemical changes which the blood undergoes in the respiratory organs.

"6. It is also manifest, that there are no organs of the body, except the lungs, which can, under any circumstances, produce chemical changes in the circulating fluid; any more than the bare trunk is capable of effecting in the tree those similar changes, which in summer are produced by its numerous leaves. The lungs are, therefore, to be regarded as the only cause of animal heat and of those chemical changes which the blood undergoes in passing from venous to arterial."

The author endeavours to show that it is evident we must make a distinction between the embryotic and fœtal life, in accordance with the meaning which has been attributed to these terms. He maintains that whatever is received by the animal and vegetable, cannot be considered as nutritious until it has undergone certain modifications in the lungs, leaves or analogous organs. The light thrown, by this important fact, on the present subject, will, he is sure, enable us to detect the fallacy of a variety of opinions in regard to the principles which regulate fœtal nutrition. "If," he adds, "the foregoing remarks be correct, it cannot be denied that there are two great classes of organs continually employed in maintaining animal existence, which have no other immediate office. The *first* class includes those organs which are incessantly labouring to support the body, as the stomach, the liver, the pancreas and the lungs. The *second*, the whole of the excretory organs which contribute indirectly towards the proper action of the former. The first may be regarded as causes, the latter as effects."

After remarking that the object of the first class of organs is either directly or indirectly to form chyle, or rather arterial blood; that if this fluid were received from without the system, the lungs, the liver, the stomach, and the pancreas, and indeed all those organs which promote the elaboration of food, would be entirely superfluous, and that there would be no occasion whatever for the brain or spinal cord, as connected with the function of respiration. Dr Holland combats the opinion that the fœtus is nourished by means of the amniotic fluid received by the mouth, as well as that of Saint Hilaire, who supposes, that the amnios contains a respirable gas, which is constantly absorbed by veins in contact with the fluid, and that the only substance which the fœtus requires for the development of its numerous organs is oxygen. On the latter subject he remarks:

"The capillaries of the skin, according to his fanciful hypothesis, are filled with venous blood, which, from its favourable situation, readily absorbs oxygen from the amnios and becomes arterial. If the adult were possessed of an arterial and venous system, but deprived of the contributions of the digestive organs, would the exercise of the respiratory function increase or maintain the muscular powers of the body, cause a deposition of fat, and produce the various actions of the animal economy? Such an idea would lead one to suppose that the only difference between arterial and venous blood is in the former containing oxygen."

"That the amniotic fluid contains a respirable gas, is a fact proved, according to the statement of Geoffroy Saint Hilaire, by experiment. Is it not more than probable, that analytical processes to ascertain the exact composition of a fluid, discover not only what it possesses in its natural condition, but likewise disengage gases that were previously in combination with its different chemical principles? If it were even allowed, that the amnios contains a respirable gas, insuperable difficulties are connected with its production and mode of action. It is imagined to be taken up by the pores of the skin, which act like so many tracheas. If these have sufficient energy to absorb, the skin must also be able to secrete: the two functions must coexist. What becomes of the secretions? As they are necessarily poured into the amniotic membrane, they must continue to accumulate from the commencement of fœtal life to its completion; and therefore, it is improbable to suppose, that a pure oxygenated principle could exert any influence under such circumstances."

In respect to the opinion almost universally held by physiologists, that the placenta is capable of oxygenating the blood it receives, Dr Holland very justly remarks, that the whole investigation resolves itself into an inquiry concerning the analogy existing between the lungs and the placenta. It has already been shown, he says, that the lungs of animals and the leaves of trees answer similar purposes. Nutritious matter, the product of other organs, is conveyed to both, in order that they may undergo certain chemical changes. These are produced by atmospheric air, and by the ejection of what is excrementitious. We have not the least evidence that actions of this kind can ever take place unless the organs which effect them have the same relations to the external world, as the lungs of animals or the leaves of plants. Dr Holland also combats and refutes Dr Lee's new hypothesis, that the liver of the fœtus secretes an albuminous fluid which is absorbed by the smaller intestines and contributes to the support of the system, and next proceeds to inquire into the functions of the placenta. On this subject he enters at length; but we have only space to state the conclusions to which he arrives. 1. The fœtus derives its blood exclusively from the mother. 2. The placenta is an organ incapable of producing chemical changes in the blood. 3. The fœtus has not in activity any organs that can in the least oxygenate the blood it receives. 4. Venous blood cannot support organic life.

His views of the materno-fœtal vascular connexion may be gathered from the following extract.

"The venous blood transmitted by the fœtus to the placenta, is absorbed by veins and conveyed to the lungs of the mother; the arterial blood derived from the uterus, is absorbed by the umbilical vein, and flows to the heart of the fœtus. We are not capable of forming an accurate idea of the number or nature of those powers which cause, in either case, the return of blood to the heart. It is quite clear, however, that it flows to the placenta from two opposite points, and that it is absorbed and carried to the mother and fœtus in a similar way, although not precisely the same, in both instances. The views of Barry go far towards explaining the circulation of venous blood in viviparous animals after birth, but do not account for its circulation in the fœtus.

"It was stated by Vieussens that the red globules of blood were not absorbed by the umbilical vein. The same absurd doctrine was also taught by Monro, Primus. 'The fœtuses of viviparous animals,' observes the latter, 'have their red blood from the same source that chickens in eggs have theirs, the action of the heart and the vessels in their body and secundines.'*

"If oxygen, and that organic construction universally belonging to the respiratory organs of animal and vegetable life be wanting, the process of oxygenation cannot possibly proceed. The simple action of muscles, or vessels, on the particles of blood, cannot create an arterial fluid.

"I have already alluded to the impossibility of the placenta performing the office of lungs. If a connexion between the placenta and uterus either of a direct or indirect kind be denied, it is impossible to account for the origin of fœtal blood. The fœtus possesses not the organs necessary to produce it, and, therefore, it must necessarily pass from the uterus to the placenta."

On the subject of the origin of the liquor amnii and meconium, Dr Holland indulges in more theory, and reasons more on assumption, than could have been expected in one who inveighs continually against theorists. Take the following as an example:

"If we allow that the amnion secretes, the activity of its function will be admitted to be proportionate to its vital energies; but this activity cannot rationally be supposed to equal that of the well-known powers of the skin, which are engaged, in every period of life, in removing from the surface of the body, perspirable matter. The physiologist may very safely infer, that the amnios is secreted by the skin, from the fact, that such secretion is its natural and unceasing function, and is, moreover, a necessary consequence of its organization, and the distribution of blood to it. That it is secreted by the amnion, is very improbable. If the fœtus had been placed in a medium of a temperature much lower than its own, transudation from the surface of its body would have been almost wholly prevented; but, as the fluid, in which it is immersed, is of the same temperature as itself, such an effect is rather facilitated than impeded.

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* Edinburgh Medical Essays, Vol. II. p. 301.

" 'Deux causes,' observes Edwards, 'influent principalement sur ces deux fonctions [absorption and transudation]: la quantité de liquide contenue dans le corps, et la température de l' eau dans lequel il séjourne. Plus il y a de plénitude, moins il y aura d' absorption; plus la température de l' eau est basse, moins il y aura d' exsudation. Dans la limite extrême de 30° cent. le contraire a lieu; les pertes l'emportent de beaucoup sur les gains, parceque la transudation prédomine sur l'absorption.'*

" The liquor amnii augments with the development of the fœtus. If this fluid is exuded from the skin, its gradual increase is in perfect accordance with those principles which are supposed to explain its origin. The vital actions of the fœtus, and a more extended surface for secretion, augment in proportion to the progress of gestation."

In relation to the meconium, he remarks:

" It was stated in the preceding pages, that there is a great difference in those causes, which excite the action of the skin and the functions of the chylopoietic viscera of the fœtus. The latter, for their operation, are dependent upon the digestive process, or are particularly influenced by it. The action of the former is very much increased by the general exercise of the internal organs, as is particularly evident after birth; but it seems capable of continuing even during the immersion of the fœtus in the amnios, when the internal organs are inactive.

" Although there is this striking difference, it is only in degree. The mucous membrane, the pancreas, and the liver, receive, during fœtal existence, arterial blood, in order to render their organization complete; and although they are not stimulated into extensive action, as at a subsequent period, by the digestive process, exercise, and other causes, yet it is impossible for them to be regularly supplied with sanguineous fluid without certain effects being produced, indicative of the partial activity of their functions. The meconium, the bile, and other substances, are then the production of certain organs thus partially exercised."

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* De l' Influence des Agens Physiques, p. 352.

"The meconium appears then to be nothing more than the admixture of the different secretions of the abdominal viscera, and is not, in any degree, the result of a regular digestive process."

It is known, that the opinion of physiologists in respect to the nature of the blood carried from the placenta to the fœtus, differs; some, as Bostock and Jeffrey, believing that it is arterial; while others are opposed to this conclusion, or consider it doubtful. Dr H. relates an experiment which, he thinks, settles the question in the affirmative. The following was the method employed by Dr Jeffrey: he took part of the cord and dissected away the gelatinous substance of it, until he had laid bare the vessels, when, on puncturing them, he observed that there was a difference of colour between the blood in the vein and the arteries. Many physiologists, as Dr Holland observes, are said to have failed in this experiment. From the tedious preparation which it required, he (Dr H.) did not succeed to his full satisfaction. But on taking part of the cord, as soon as the child was born, around which he had previously tied a ligature, about two inches from the free extremity, and cutting this with a sharp scalpel, in order to make an even surface, he very clearly discovered, on pressing the cord from below upwards, blood of a very different colour, flowing from the umbilical vein and arteries. If the experiment does not fully succeed in the first instance, Dr H. directs a ligature to be tied still farther from the end, and, having made a fresh surface, to press gently from below upwards. Sometimes a large drop of florid blood is observed to stand directly over the umbilical vein, and another dark coloured over the arteries, without their being in the least mingled with each other. In this case, the difference between the two is so striking that no one can fail to observe it.

Dr Holland states that it is an interesting and important inquiry whether the whole of the fœtal blood flows through the umbilical arteries to the placenta in the same time as the whole of the sanguiferous fluid of the mother circulates through the lungs, viz. in about three minutes. If such be the case, he remarks, the fœtus will have the whole of its blood renewed as frequently as that of the maternal system. He lays it down as a well ascertained fact, that there is the same relation between the heart of the fœtus and the quantity of blood belonging to its body, as there is between the heart of the adult and the quantity of blood circulating in its system; and thinks that from this we shall be able to estimate the difference between the properties of fœtal and maternal blood.

"At every contraction of the left ventricle of the heart in the adult, a certain quantity of blood is expelled, the whole of which must inevitably return to the right auricle and be sent to the lungs, before it can arrive at the point from which it departed. This revolution is supposed to be performed in about three minutes. The blood transmitted at every contraction of the left ventricle of the heart of the fœtus, does not return, in the same manner, to the right auricle; one portion is sent to the internal iliacs, and conveyed from them to the placenta, by means of the umbilical arteries; another pursues its regular course, circulating from arteries into veins, until it arrives at the right auricle, where it is blended with the arterial fluid derived from the umbilical vein which terminates in the vena porta and vena cava inferior. This peculiarity in the circulatory system of the fœtus appears calculated to produce blood of an inferior quality."

"The whole mass of the blood of an adult circulates throughout the system once every three minutes, because the heart contracts about seventy-five times per minute; if it contracted oftener with equal or superior energy, the same quantity of blood would complete its revolution in considerably less time. The heart of the fœtus, instead of contracting seventy-five times per minute, contracts at least one hundred and twenty times. In considering this subject, we must not forget that there is the same relation between the heart of the fœtus and the quantity of blood belonging to its body, as there is between that of the adult and the quantity of blood circulating in its system.

"It is therefore obvious, if the fœtal heart contracts one hundred and twenty times per minute, that the complete circulation of the blood in its system will be effected in almost half the time of that of the adult, and consequently, although venous blood is always mingling with the arterial fluid of the umbilical vein, the blood of the fœtus cannot be particularly deteriorated from this circumstance, because the whole mass is frequently renewed by the very numerous contractions of the heart. If this contracted seventy-five times instead of one hundred and twenty, the relation between it and the mass of the circulating fluid remaining the same, the arterial qualities of the blood would be diminished almost one half."

We have devoted so much space to an examination of the contents of the principal chapters of the work before us, that we are compelled to leave the others unnoticed, and to terminate here this article. We cannot, however, take leave of Dr Holland without bearing testimony to his ingenuity, acuteness, and sound criticism; and expressing once more our regret at his disregard of his own judicious precepts in favour of a simple and philosophical investigation of facts, and at his too free indulgence in theories and hypothesis; circumstances we should not probably have noticed so particularly, had he not himself borne so hard on modern physicians for their theoretical propensities. There is an old saying that they who live in glass houses must throw no stones. It would have been better for Dr Holland not to have attacked his contemporaries for their partiality to speculation. Had he not done so, he would have been spared many a severe retort, and have enhanced the interest of his work, which, we doubt not, is somewhat diminished by the effects of the comparisons every reader must naturally make between the precepts it contains, and the manner in which they are followed.

ART. XI.—DELIRIUM TREMENS.

A Practical Essay on Delirium Tremens. By ANDREW BLAKE, M.D. *Member of the Royal College of Surgeons, and Surgeon to his Majesty's Seventh Regiment of Dragoon Guards. London*, 1830, *pp*. 68.

Much has recently been said and written on the subject of delirium tremens, and much diversity of opinion has prevailed, and still prevails, among different writers, as to its essential nature and proper methods of treatment. While some have given it a place among nervous diseases, others have considered it an inflammatory affection, each class addressing their remedies to the particular system they have supposed to be implicated; a third portion of the profession candidly confess that they are entirely ignorant of the true pathology of the disease, and are content to employ those remedies which they believe the accumulated experience of observant practitioners have decided to be most efficacious.

With this contrariety of sentiment on a subject so important, it was truly gratifying to peruse the little volume now before us, which comprises, in the short space of sixty-three pages, the most accurate delineation and systematic arrangement of the phenomena of the disease that we have yet seen, while it indicates some very important practical rules to guide us in its successful management.

Its author, Dr Blake, is attached to the medical department of the British army, under the superintendance of the distinguished Sir James M'Gregor, by whose special direction his essay was published, and directed to be distributed among his brother practitioners in the same service.

Having had tolerably extensive opportunities of testing the principles laid down by Dr Blake, from our own personal observations, we shall attempt, on the present occasion, a pretty full analysis of his views, with such comments as our own experience may have suggested, and we may hope that the importance of the subject will justify us in the effort to draw attention to his useful work, which, we believe, has had but a limited circulation in this country.

The first two pages of the treatise are occupied with a brief but pretty acute analysis of the different appellations assigned to the disease by different writers, all of which Dr B. considers liable to objections, and proposes, as the most appropriate, the title of "Erithismus Ebriositatis;" without occupying time in noticing the reasons on which this term is founded, or the objections to those which exist, we shall pass it by, preferring, ourselves, to adopt the name of delirium tremens, which appears to have been generally sanctioned, and which stands (somewhat inconsistently perhaps) at the head of Dr B.'s treatise.

The disease is classed, by our author, in the nosology of Cullen, class neuroses, order adynamia, which is supported by his definition of the affection, viz. "indirect general debility succeeded by a morbid increase of action in the brain and nervous system, which is attended with delirium, and terminates generally either in sleep and subsequent health, or in death from collapse or effusion on the brain."

After making some preliminary remarks on the prevalence of the disease among the British soldiers in the West Indies, where he was then situated, and enumerating the causes of its frequent occurrence, our author proceeds to give us an account of his experience and observation, during a residence of upwards of five years in the West Indies, in the capacity of physician to a British regiment.

He states that he was early impressed with a belief that the authors who had written on delirium tremens had not sufficiently explained all its phenomena, and had altogether omitted its division into *distinct and uniform stages*, a circumstance which he considers of great importance in the application of remedial agents. He thought he discovered that they had overlooked some of its pathological characters, as well as "many essential points in the order of treatment."

Impressed with this conviction, he commenced a series of observations in reference to the order of occurrence of the phenomena of the disease, which resulted in dividing it into three distinct stages. This division is supported by a table given in the appendix, in which the duration of each particular stage and the periods occurring between them, as noticed in a number of cases, is indicated; the opinion which Dr B. formed from these observations, induced him to believe that delirium tremens is a disease "*sui generis*" somewhat similar in its course to a paroxysm of ague, to which indeed it bears no small analogy, being to the brain and nerves what intermittent fever is to the arterial system.

This division of the symptoms of delirium tremens is novel, and, we believe, entirely original with Dr B. It is the result, as far as we have been able to discover, of close and accurate attention to the varying states of the system in this intricate affection; and, if true, is rendered highly important both in assisting our diagnosis in the disease, and in directing our attention to those particular pathological conditions, for which particular substances, *judiciously modified*, are the only remedies. As an evidence of its correctness, we can only say, that in upwards of sixty cases of the disease which have fallen under our notice since our attention was directed to an observance of its stages, we have rarely been at a loss in satisfying ourselves as to the particular conditions of the system corresponding to the stages as described by Dr Blake, though as we shall hereafter have occasion to remark, we differ from him in some minor points, which enter into his description of them.

After making these general remarks on his new views in relation to a proper arrangement of symptoms, our author presents us with some excellent diagnostic signs, to enable us to discriminate the numerous insidious modifications of this dangerous affection. These may be summed up in an enforcement of the precept of paying strict attention to its distinct and uniform stages, (modified by habits, temperament, &c.) which Dr B. believes will always insure us a correct and unerring diagnosis.

One or two pages are occupied with strictures on the views of other writers on delirium tremens, in which even the enlightened Baron Dupuytren does not escape. Passing by these personal criticisms incident to authors, we proceed to an examination of more important matters.

First, we shall introduce to our readers Dr B.'s description of the disease, and here we cannot do him justice without quoting copiously. In speaking of the first stage, he says:

"The first distinct indications of this disease usually appear in the following order: a peculiar slowness of the pulse, frequently as low as forty-four in a minute, attended with coldness of the hands and feet, which, being generally bedewed with moisture from the effect of evaporation, present a clammy icy feel, these are preceded or accompanied with symptoms of general debility, and a diminution of temperature, owing, of course, to the defect of sensorial or nervous influence; cramp in the muscles of the extremities, with giddiness, nausea, and occasional vomiting, are also troublesome. The bowels are generally open, but sometimes the contrary, nervous tremor of the hands and tongue, the latter being moist, and but slightly furred, form also in most instances prominent features in this stage; all these are accompanied with dejection of spirits, frequent sighings, and oppression of the præcordia, anxiety and depression of the countenance, with short and interrupted slumbers."

This extract conveys to us a very accurate description of the premonitory signs of delirium, or the first stage of delirium tremens, though we must differ from Dr B. on one or two particulars. We have occasionally met, though rarely, with the "peculiar slowness of the pulse," which he has noticed; more frequently we have found the pulse nearly natural as to frequency, full and soft; sometimes we have found it, in this stage, voluminous and bounding, such a pulse as would indicate, under other circumstances, the use of the lancet. The clammy moisture of the hands and feet is particularly striking in the forming stage, though we have seen it cover the whole surface, before any symptoms of delirium were manifest.

The time, according to our author, between the abstraction of stimulus and the appearance of the first stage is uncertain, and depends on the nature and habits of the subject.

This fact we have had frequent opportunities of witnessing, having known all the symptoms to commence in twelve hours after a debauch, in some instances, while in one rare instance, an interval of six days supervened; we should suppose that from twelve to thirty-six hours might be stated as the average period. Dr B. proceeds to describe the gradation between the close of the first, and the full development of the second stage, which is thus expressed:

"As the second stage approaches, the countenance gradually assumes a wild aspect, the patient becomes restless, with an apparent anxiety to perform, immediately, whatever you desire, or even to anticipate you in what he thinks you are about to require. I have generally been able to prognosticate approaching delirium by a careful discrimination of this last symptom."

This "last symptom," in the first stage of Dr B., is particularly striking, and we presume every one who has seen much of this disease will recognize it. We were struck with it before we saw it noticed by Dr B., although we did not appreciate its importance as a diagnostic symptom.

The duration of the first stage is various, and is governed, according to our author, by the state of the constitution, and previous habits of the patients. In a young and vigorous subject, where the resources of nature are capable of producing speedy reaction, it will of course terminate earlier in the second stage than in those individuals broken down by repeated attacks of the disease.

The second stage, or the occurrence of nervous reaction, is thus described:

"When the second stage is established, a train of symptoms, consonant with high nervous irritation, gradually follow; mental alienation, in various forms and degrees, is developed, and, with this, an exertion of the nervous power, to re-establish the state of energy, or rather excitement, to which the system had been habituated, and which existed previous to the cessation of the application of diffusible stimuli to the nervous system through the medium of the stomach; the heart and arteries, also, at length sympathize; the pulse becomes quicker, though it continues small, and the heat of the surface increases; there is, however, throughout the disease, a marked difference between the temperature of the hands and feet, and the rest of the body, the former retaining, in some degree, the icy and clammy feel already spoken of, while the rest of the surface may become even hot and dry. If this state continue long, without amelioration, a clammy sweat pours from the skin, accompanied with excessive irritability; the disorder of the mind increases, and objects of the most frightful forms present themselves to the imagination of the patient, and in positions in which, as Dr Pearson says, 'it is physically impossible they can be situated.'"

Our author then gives several cases illustrating some of the peculiar forms of hallucination which he had observed; these are curious and interesting, and might almost fill a volume, were they presented in all their diversified and frightful characters.

But before proceeding further, let us glance at Dr B.'s description of the second stage, which, as far as we have been able to discover, is very accurately drawn, corresponding closely with our own observations. But then we must differ from the Doctor in regard to the pulse; as far as our observations on this point have extended (and they have been particularly directed to it), the pulse, even in the height of the second stage is, in most instances, full, slow, and soft, as in the first, and it is not until near the close of this stage, that we have observed it to become small and very frequent; when this has occurred we have considered it a very dangerous symptom, and our fears have been too often realized. Indeed, we have been particularly struck with the slowness and softness of the pulse, even under the most intense cerebral irritation.

To proceed with our author's description of the disease:

"From the moment delirium is fairly established, the patient is deprived of the restoring solace of 'balmy sleep,' and is harassed by obstinate pervigilium, which may be looked upon as a pathognomic symptom of the second stage of this disease. During all this the appearance of the countenance becomes particularly anxious; the tremors of the hands and tongue generally continue, and the fur on the latter increases; the urine, at the same time, becomes scanty and pale, and the bowels rather confined, or, if relaxed, the stools are dark coloured; the pupils, at this period, are contracted, but without *intolerance of light*.

"When these symptoms have continued for one, two or three days, and in a few instances even beyond that period, where a fatal termination is not about to take place, I have almost always observed their gradual mitigation, attended with a strong tendency to sleep, exhibited by yawning and drowsiness, which, as soon as it supervened, became profound, and lasted from six to eighteen hours, and occasionally longer; constituting the third stage of this nervous paroxysm, or general relaxation of the nervous energy, similar to the capillary relaxation of the arterial system, which takes place during the sweating stage of ague, and to which, in almost every instance that I have seen, convalescence has succeeded."

Dr B. has never seen cases of this disease in which delirium has lasted over six days, as mentioned by some writers. It has fallen to our lot to witness one case of paroxysmal mania now under cure, which has occurred at intervals for the last six months, and another of permanent fatuity, which are the sequela of severe attacks of delirium tremens.

Such occurrences are, however, rare, so much so as to cause surprise that so little permanent or organic mischief should ensue, after the most violent and repeated attacks upon an organ so highly excitable as the brain.

In speaking of the unfavourable termination of the disease, our author adds:

"When the third or sleeping stage does not supervene in due course in this disease, and the general symptoms increase in violence, the mind appears to labour under excessive irritation, and the patient makes violent and frequent struggles, which are attended with copious perspiration; this, as the disease advances and the strength fails, becomes deadly cold; the pulse, at the same time, increases in rapidity, becomes thready, and declines in vigour; the tremors of the hands also augment, and extends to the whole frame, and approaches to subsultus tendinum, though it does not exactly resemble that affection; it seems rather allied to nervous rigours,* which I have sometimes witnessed in violent cases to precede the approach of the sleeping stage, and which are very alarming, particularly to those unaccustomed to meet with them, as by such persons they are liable to be taken for rigours, indicative of internal mischief.

"According as all the symptoms of the malady increase, the pupils become exceedingly contracted; the countenance is pale and anxious; the tongue brown and dry in the centre; the patient talks incessantly and with astonishing rapidity, and will be perhaps affected with pseudoblepsis, or carpologia; the delirium then becomes excessive, and continues till a short time before death. In one case, at this stage, the mind was so diseased, that after having desired the patient to put out his tongue, he continued for near half an hour drawing it in and putting it out alternately, in quick succession, whenever I looked at him, from a deranged association of ideas; there is generally, however, a calm previous to death, which, in most instances, takes place without a struggle, though, in some instances, it may be immediately attributable to the supervention of an epileptic fit."

To this very minute and accurate delineation of the symptoms of this formidable disease, traced through their various grades of intensity, and resolving themselves, in the one case, in "sleep and subsequent health," and in the other, in death "from collapse and effusion in the brain," we feel disposed to add one symptom which we have not seen noticed, but which has struck us very forcibly as indicating a near approach to death; we allude to a disposition manifested in patients, in the last stage of delirium tremens, to pick at small imaginary objects, pieces of money especially, which they believe to be immediately contiguous to them; we know not whether it be accidental or not, but this form of hallucination has occurred in almost every fatal case of the disease which has fallen under our notice.

We have now followed Dr Blake through his description of the stages of delirium tremens as far as his observations have enabled him to trace and define them. We know not what our readers may think of his peculiar views; we would advise them carefully to test them by personal experience; for ourselves, we are satisfied of their correctness, and have derived great benefit from their exposition.

To use our author's own expressions in summing up his observations on this head.

"Such are the general symptoms of the three stages of this complaint as they presented themselves to my observation: the first, or the stage of exhaustion, I would compare to the cold stage of ague; the second, or that of nervous excitement, to the hot fit; and the sleeping, or third stage of this disease, to the sweating stage of intermittent fever; thus completing the analogy between the arterial and nervous paroxysms of the two diseases."

Dr B. next presents us with his views on the pathology of the disease, the causes which produce it, and its diagnostic symptoms. As far as we understand him, he believes it to be an affection altogether of a nervous nature, a predisposition to which is established, by the habitual and excessive use of ardent spirits; which have a peculiar action on the nervous system, bearing an analogy to the action of mercury on the vascular system; this predisposition may be induced, according to our author, by the long continued abuse of any of the diffusible stimuli, such as opium. No cases of this kind have fallen under his notice, though he believes some are well attested. On this point we must differ from the doctor; we believe that opium is a peculiar stimulus, producing a specific effect on the nervous-system, and inducing, by its habitual abuse, a specific disease. This opinion is founded, not on theory, but observation: it has been our lot to witness one well marked case of disease, produced by cessation from the habitual and immoderate use of opium, which differed in many essential points from delirium tremens. We saw, in this instance, none of the tremors or other characteristic symptoms of the first stage, nor the hallucinations or violent muscular action of the second, nor all these increasing in intensity in the third; on the other hand, the patient presented, throughout the attack, symptoms of nervous exhaustion, without reaction, with a *peculiar* and most distressing form of delirium; nor did sleep produce any mitigation of the symptoms.

Our author's theory as to the causation of the disease, though perhaps not novel, is well expressed. It is as follows:

"The immediate or occasional cause of the disease appears to me to be in general the sudden cessation, if I may use the expression, of the application of accustomed stimuli, through the medium of the digestive organs, to the nervous system, in consequence of which cessation, the nervous power gradually sinks to the lowest ebb; and in endeavouring to rally and re-establish the lost equilibrium between it and the vascular system, its efforts exceed the exhausted resources of the sensorium, the consequence of which is delirium, &c."

After spending some remarks in combating the doctrine of absorption of alcoholic molecules as the cause of the symptoms of delirium tremens—a doctrine totally incompatible with our author's views—he proceeds to make a few remarks on post mortem appearances. His conclusions on this head may be understood, from the following short extract:

"When this disease terminates fatally, it does not seem to me to be owing to venous congestion, as the late much lamented Dr Armstrong asserts in his valuable work, or to inflammation of the brain, as Dr Clutterbuck maintains in his lectures in the Lancet, Vol. II, p. 376.

"I would rather ascribe it to serous effusion within the cranium."

In support of this opinion several dissections are related, which appear satisfactory to Dr B. We are disappointed, however, that he has not more fully examined this subject, and furnished us with some additional facts. In our dissections we have found both venous congestion and serous effusion; but from the different conditions of the brain in which these appearances may ensue, as well as from other circumstances, we have not considered them conclusive. In this dilemma, we have believed that death was occasioned in this disease by a peculiar deleterious action on the nervous masses, not cognizable on dissection; by one of those innumerable and diversified grades of nervous irritation, as subtle in its morbid actions, as is the nervous influence in its regular operations.

The diagnosis in this disease is not difficult, provided strict attention be paid to the symptoms which it presents, and the order of their occurrence, which will be found essentially to differ from those of any other affection. Dr B. treats of this subject at large, and points out the discriminating marks between the delirium attendant on this complaint, and that of various other diseases. We shall not follow him through this labyrinth, but refer to what we have already presented on this head.

The prognosis of this insidious affection is somewhat difficult. According to our author, we shall be materially assisted in forming it, by considering the previous habits and constitution of the patient. Thus in a young and vigorous subject, we need scarcely fear an unfavourable termination under judicious management; whereas, in an individual broken down by repeated attacks of the disease, we may justly fear the inadequacy of the powers of the system to restore its healthy actions. We cannot but consider this point of prognosis as doubtful, having seen a patient recover from the fifteenth attack of delirium tremens.

The state of the pulse Dr B. considers "a comparatively sure guide" in forming our prognosis; when its frequency did not exceed one hundred strokes in a minute, he looked upon the patient, generally speaking, as safe; "but when" says he, "from its rapidity and the tremor of the hands it could scarcely be counted, I considered him in imminent danger."

Our author then proceeds to give us the result of his ample experience in the treatment of delirium tremens; his plan differs from that of all other writers, not in the remedies employed, but in the method of their administration. Thus he insists on keeping constantly in view the state of the patient's system, or the *particular stage* of the disease, and in carefully adapting our remedies to the varying condition of the animal and vital powers; remembering also that delirium tremens is very apt to be complicated with other diseases, and that its symptoms are materially modified by the temperament and habits of different individuals.

His treatment then is adapted to the different stages of the complaint, and the remedies appropriate for each are separately considered.

Let us follow him through an account of his treatment in the first stage.

"During the first stage much may be done, the disease may even be cut short, and a prevention of the second stage effected, under proper management; that is, by attending sufficiently to the precept, "veniente occurrite morbo;" thus, if slight gastric derangement, attended with nausea and occasional vomiting exist, I have found effervescent draughts, in which there were ten drops of laudanum, administered every second hour, with emollient, and if necessary anodyne enemata, very efficacious in the intermediate hour. I have been in the habit of giving a little rum with warm water and sugar, using the tepid or even the cold affusion, according to the strength of the patient and the probability of the production of re-action; thus in a young and healthy subject, I would have recourse to the cold affusion and "vice versa," but if in this stage the warm bath should be preferred, it ought not to be of a temperature high enough to induce debilitating effects. I would recommend that anodyne frictions at the same time be made to the epigastrium, and that the head should be shaved and well rubbed with strong volatile liniment, so as gently to stimulate the surface of the scalp; a blister to the nape of the neck is also of advantage in assisting to excite action in the immediate vicinity of the brain."

Dr Blake is theoretically opposed to the use of emetics in this or any other stage of the complaint, fearing their debilitating effects. Where nausea and vomiting do not exist, instead of effervescing draughts, he gives the "camphor mixture with twenty or thirty drops of æther, and ten of Tr. opii." He also allows soup, arrow root, sago, or any other mild nourishment in moderate quantities. He directed rum, as the accustomed stimulus of those who fell under his care; in other instances wine, porter, &c. would be advisable.

We have no doubt that the practice above detailed would prove highly useful in many *mild* cases of delirium tremens in its forming stage, but in violent attacks of the disease, such as have frequently fallen under our notice, we believe it not sufficiently *active*. Thus a number of cases have occurred to us, where the nausea and vomiting have been excessive—the stomach rejecting every thing that was presented to it: in these cases we have found effervescing draughts totally inefficient, and have resorted to more active measures. Our plan has been to give anodyne enemata, frequently repeated, and to apply a large spice plaister* over the epigastrium. As soon as the irritability of the stomach is allayed, (as it usually is by this course), we commence with small quantities of nutritious and stimulant articles, frequently repeated, and gradually increased. The remedies best adapted for this condition we have found to be highly seasoned soup, or beef tea, with porter, and an aromatic powder consisting of equal parts of valerian, cinnamon and cloves; say from five to ten grains of each, administered every two, three, or four hours, according to circumstances; and these stimulant and nutritious articles, by supplying the place of the accustomed stimulus of the patient, (a cessation from which it will be recollected has given rise to the symptoms), have often succeeded in our hands in allaying the most distressing and exhausting vomiting, in controlling the nervous tremors, which sometimes prevail to a great extent, and by their continuance, modified of course according to circumstances, in preventing the accession of the stage of nervous excitement.

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* The spice plaister is a compound of equal parts of cloves, cinnamon and red pepper, made into a cataplasm by means of rye meal, brandy and honey. The brandy should be well heated, and the plaister applied as hot as practicable. This prescription was originally recommended by Dr Parrish, and is at present much used by him, particularly in cholera.

We have occasionally employed the emetic practice, as first recommended by Dr J. Klapp of this city, and we have seen the second stage prevented by the timely administration of an emetic; we decidedly prefer the other course, however, believing it to be better adapted to the generality of cases.

Dr B. strongly reprobates the practice of giving large doses of opium indiscriminately in this disease. He believes such a recommendation has its origin in an ignorance of the *true nature* of the disease and the *stages* which it observes.

His reasons for the adoption of the practice which he details for the first stage, are thus cogently stated.

"My object at this period, or in the first stage of delirium tremens, would be to raise the lowered scale of the nervous power, not by overwhelming it with large doses, but by the gradual effect of the administration of diffusible stimuli, aided by opium, in quantities calculated to allay irritation, without at the same time increasing debility. The means here mentioned should be persisted in, with modifications, as the symptoms increase or diminish, and with a view to the general principles already laid down, which, if properly attended to, will in many cases cut short the disease, by averting the second stage and inducing sleep, in the same way as the warm bath on one principle, and bleeding on another, used during the cold stage of ague, may either bring on the sweating, and thus prevent the accession of the hot stage, or by relieving congestion, prevent the supervention of either, and thereby at once shorten the paroxysm.

To proceed to the treatment adapted to the supervention of nervous excitement, or the second stage of this disease—our author remarks:

"Should, after all our efforts, the second stage, or that of nervous reaction supervene, we must not be discouraged, but then act on the principles generally recommended, viz. the administration of full doses of opium, taking care at the same time to support the efforts of the system by the assistance of diffusible stimuli; and anti-spasmodics, such as brandy, rum, wine, porter, and camphor or musk mixture, with æther is directed in the first stage; to these means I have been in the habit of adding calomel and Dover's powder, say two grains of the former, and six of the latter every two hours, until the system became affected or the disease yielded. Mercury may have been of service here indirectly, owing to its deobstruent and equalizing effects, as well on the circulation in general, as on the secretions."

Dr B. also approves of the warm bath in this stage; and if constipation prevail, he considers croton oil as the best purgative, believing, that in addition to its purgative effect, it exercises a favourable influence over the nervous system. This treatment must be continued, until a favourable crisis is about to ensue: at this period Dr B. thinks it very important "not to interfere too much with the intentions of nature, by over doses of medicine, particularly of opium," and he thinks that after "a fair quantity" of that active drug has been administered, we should be very careful in its further use, especially in frequently repeated doses.

We regret that our author has not been more explicit in telling us what he means by "full doses" or a "fair quantity of opium," particularly as he considers it our main stay in the stage of nervous excitement. On this matter there is a great difference of opinion; for our own part, when the nervous paroxysm is fairly formed and the case is severe, we have considered, generally speaking, ten grains of opium a full dose, and have not hesitated to repeat it every three or four hours, until a decided effect was produced. If after continuing this practice for twelve or fourteen hours, we find the symptoms increasing, (which by the bye is a rare occurrence) if the pupils become more contracted, the pulse more frequent, and the perspiration is found issuing from every pore, we have then considered that we have given a "fair quantity of opium" and have desisted. The plan of giving mercury in this disease is not novel; we have seen excellent effects produced by it, particularly given in the manner indicated by Dr B. We have never tried the warm bath, not having the conveniences; but have derived great advantage from stimulating pediluvia: it has been our practice immediately to precede doses of opium by this important adjuvant; its secondarily sedative influence, in connexion with the narcotic effect of the opium, is particularly beneficial.

We are a little surprised that our author has not mentioned anodyne enemata among his list of remedies adapted to the second stage, as we have seen such excellent effects follow their use under the most discouraging circumstances. We have occasionally given large quantities of opium by the mouth, without producing any effect, and sleep has been speedily induced after a proportionate quantity, or even an equal quantity by the rectum. We have explained this circumstance by supposing that the susceptibilities of the mucous membrane of the stomach have become so much impaired by repeated stimulation, that it is rendered incapable of conveying those impressions to the sensorium, so essential to the production of a narcotic effect; whereas the rectum, not having been accustomed to the same morbid impressions, preserves its usual healthy relations.

Throughout the treatment for the second stage, Dr B. enforces the necessity of believing that when it is once fairly formed, it cannot be abruptly terminated, no more than typhus fever in the height of its career; we must therefore endeavour "to pilot the patient through the disorder with the least possible risk of structural injury to his constitution." He also advises us to pay particular attention to the moral management of the patient, endeavouring to gain an ascendancy over his mind without resorting to coercive measures.

When our endeavours are crowned with success, and the sleeping stage supervenes, we must still be cautious in our treatment.

The following extract includes the author's judicious observations on this important point.

"Should sleep come on it will be at first disturbed, and accompanied with nervous startings; it is therefore to be encouraged by all the means in our power; all noise should be avoided, and in warm climates a mosquito net ought to be let down so as to preclude any annoyance from insects: should the patient awake soon, he will often be in a state of alarm and nervous agitation; but if some warm stimulating drink, with a moderate dose of opium be given, and mild and assuring conduct adopted, he will in almost every instance fall into a more profound sleep, from which, through the restorative effects of "nature's soft nurse," he generally awakes perfectly rational, after which we have little more to do than support the strength and gradually diminish the quantity of stimuli which we have been in the habit of administering, so as to bring the constitution back to a moderate and healthy degree of excitement."

By "a moderate and healthy degree of excitement," we presume Dr B. means to indicate that condition in which all the organs will perform their appropriate functions, without *any artificial stimulus*.

With *suitable attentions* we believe the most inveterate drunkards may be brought to this point; many instances have fallen under our notice of individuals who have long been accustomed to drink a *quart* of *spirits* daily; who, with proper care, have, in a few days, enjoyed better health by a total abandonment of their old habits.

Should our remedies not succeed in bringing about a favourable termination of the second stage, appearances will soon indicate effusion on the brain: when this becomes evident, Dr B. recommends that a large blister should be applied over the scalp, with blisters and mercurial frictions to the extremities, and the liberal administration of musk or ammonia; though he fears, that when the symptoms have arrived at this height, but little can be done by medical applications.

We would say a few words in relation to blistering the head in this disease; many practitioners are theoretically opposed to this remedy; our experience sanctions their employment, even in the height of the second stage.

After having given large quantities of opium in the manner heretofore described, if the symptoms go on increasing, if the pupils become contracted, as they almost invariably do, if the delirium increases, if the pulse quickens, &c. it has been our uniform practice to apply a blister over the whole scalp; we have often witnessed a favourable termination put to the symptoms (even in the most hopeless cases), by the adoption of this plan. Dr B. applies a blister after effusion has taken place; by the same means we endeavour to *prevent* its occurrence.

Our author has seen but few cases of delirium tremens which required the use of the lancet; in some particular instances it may be necessary. In cases complicated with local inflammation it may be advisable to bleed even freely; but even here, says our judicious author, " we must not lose sight of the general nature of the disease, and while, on the one hand, we reduce the strength of the arterial system by bloodletting, we ought to endeavour on the the other to raise, by appropriate means, the nervous power."

Dr Blake here brings his valuable remarks on this interesting disease to a close, hoping that he has established, to the satisfaction of his readers, the following general conclusions, viz.

" First. That delirium tremens is altogether a nervous disorder, the consequence of the sudden cessation of habitual intemperance in the use of diffusible stimuli; and to which the system is equally liable, whether it be suffering under a sporadic or traumatic affection, or be in apparent ordinary health at the moment of such a sudden change in the habits.

"Secondly. That the disease is one of a paroxysmal type, and may be divided into three stages, all essentially differing from each other in their symptoms and nature, and consequently requiring each a different modification of treatment.

"Thirdly, and lastly. That the stimulo-narcotic mode of practice, when so directed and modified as to be applicable to each particular stage of this disease, is the one which promises to be most successful."

We need not repeat our estimate of Dr Blake's treatise; but can only add, that we should be glad to see it more extensively circulated among the practitioners of this country.

ART. XII.—BELL ON BATHS AND MINERAL WATERS.

On Baths and Mineral Waters. In two parts. Part I. A full account of the hygienic and curative powers of cold, tepid, warm, hot, and vapour baths, and of sea bathing. Part II. A history of the chemical composition and medicinal properties of the chief Mineral Springs of the United States and Europe. By JOHN BELL, M.D. *H. H. Porter, Philadelphia.* 12*mo, pp.* 532. 1831.

When we consider that almost all writers on medicine, hygiene and education, from the earliest periods, concur in recommending bathing as an important means for improving health, and a powerful remedial agent in various diseases, we cannot but be struck with the little attention which has of late years been paid to it, and the very slight extent to which the profession, as well as the public generally, have availed themselves of its advantages.

No agent is capable of producing such general, permanent, and beneficial effects upon the system as bathing, when properly managed; while from the agreeable sensations which it imparts, it has constituted equally the luxury of savage and of civilized life.

In ancient Greece and Rome it was held in such high repute and so universally practised by all classes of the people, as to become one of those indispensable comforts, without which life itself, in their estimation, would be deprived of one of its chief enjoyments. Of the high rank assigned to it in the cure of diseases we have ample evidence in the writings of the Grecian and Roman physicians.

So long as the practice of bathing was kept within proper bounds, the effects ascribed to it by the ancients in imparting increased health and vigour to the system generally, can scarcely be viewed as exaggerated. But when, subsequently, it was resorted to merely as a luxurious indulgence, from the excess to which, in consequence, the use of the hot bath, especially, was carried, the good effects of the practice were in a great measure counteracted, and in many cases even injury to the constitution no doubt resulted.

At the present day it is among the people of the East and those of northern Europe, almost exclusively, that bathing is regularly and generally practised. In America, especially, and throughout Great Britain, the use of the bath is confined to comparatively a few individuals, and by these resorted to only during the summer months; while the great mass of the people are entirely precluded from enjoying its advantages, owing to the want of proper conveniences in their own dwellings and the absence of public establishments appropriated to their use; as well as from their ignorance of the extent to which frequent bathing contributes to their health and comfort. The time, however, is, we trust, fast approaching when it will be otherwise; when all, including the labourer and the mechanic, shall have the means, as well as the inclination, to enjoy throughout the year the regular use of appropriate baths.

It has been asserted that frequent bathing is of less importance at present than it was among the ancients; the general ablution of the body by the bath being rendered more necessary to them in consequence of their repeated indulgence in athletic exercises, the greater exposure of their bodies, and their ignorance of linen as an article of clothing. But this we deny. A large portion of the community amongst us are equally and unavoidably exposed to a variety of causes by which the surface of their bodies becomes loaded with filth, the speedy and complete removal of which is indispensable to the maintenance of perfect health. To pretend to the preservation of strict personal cleanliness, without the aid of the bath, is a perfect absurdity in any individual. Even the natural discharges from the skin, if allowed to accumulate upon the surface, are always productive of uncomfortable feelings, frequently of disease.

Under no circumstances, therefore, can the use of the bath, with propriety, be dispensed with.

With the very general adoption of a more simple and improved system of therapeutics, we are happy to find that the attention of physicians is beginning to be again directed to the importance of bathing as a remedial agent. When the few remaining prejudices against its use, the result of erroneous impressions as to its mode of operation on the system, shall be removed, we are fully persuaded it will be as frequently resorted to as it was by the earlier practitioners; divested, however, of the useless and cumbrous refinements in its mode of administration, which we find described in the writings of Galen and Baccius.

It must be evident that the proper management of bathing, so as to obtain from it effects decidedly advantageous, either as a purely hygienic agent, or in its application to the cure of disease, can result only from a correct knowledge of the manner in which it affects the skin, and through it, the different organs of the body, and of the particular circumstances and morbid conditions which call for an increase or diminution of its temperature. Upon all these points, the majority of the medical profession, we regret to say, are not well informed, while the public at large, as we may suppose, are in entire ignorance. To this, more, perhaps, than to any other cause, is to be attributed the general neglect of bathing which prevails both here and in England, or, when for a season public attention has been directed to it, the disuse into which the practice has speedily fallen.

The unreflecting are very apt to imagine that the simple application of water to the surface of the body cannot be productive of injury, and, hence, that in the absence of disease, they may plunge into it at any time with perfect impunity. From this error not a little mischief has resulted. The injurious effects of immersion in cold water when the body is in a state of exhaustion from fatigue, are evinced in the well known case of Alexander the Great, whose life was nearly destroyed by plunging after a fatiguing march into the Cydnus. The almost instantaneous death, also, of a highly respectable citizen was produced, during the last summer, in New York, by immersion in a cold bath when exhausted by profuse perspiration.

That the cold bath acts as a tonic, by imparting strength and vigour to the system, is a very common opinion with the public, and one advocated in almost every treatise, professional or otherwise, which has appeared on the subject of bathing to a very late period, while to the warm and hot baths is ascribed a directly contrary effect; they being presumed to occasion invariably relaxation and debility. The weak and valetudinary being induced by these erroneous views to make use of the cold bath, and not deriving from it those advantages they were led to anticipate, but, on the contrary, uncomfortable feelings or even more serious injury, have erroneously attributed to bathing in general, effects which are referable only to the use of water of too low a temperature, at a time when the system is deficient in strength and vigour.

The terms tepid, cold, and even warm, when applied to baths, within the limits of temperature at which they are generally resorted to, are to a certain extent merely relative: a bath of the same temperature producing the sensation of coolness or of warmth, according to the condition of the system, its degree of health and vigour, and the consequent state of the skin at the period of immersion; while the subsequent effects of the bath will vary likewise under these different conditions of the body. It is from this circumstance that have resulted, in a great measure, the erroneous and contradictory opinions which prevail on the subject of bathing. The increased glow of the skin, accelerated pulse, and augmented appetite, induced by the reaction of the system in a vigorous and healthy individual, after a short continuance in a cold bath, have originated the idea of its tonic powers; while the increased perspiration, diminished action of the heart, and general languor, incident to a prolonged continuance in, or abuse of, the hot bath, have caused every bath which does not occasion a decided chill at the moment the body is immersed in it, to be ranked as debilitating. These opinions are the very reverse of those of Galen, who pronounces immersion in cold water to be fit only for the offspring of bears and lions, recommending the warm bath, however, as capable of promoting the growth and strength of the young.

The important fact to which we have just alluded, that the sensation produced by water of any given temperature, below, at least, that of the human body, will vary in different individuals according to the amount of vigour they possess, and of the ordinary or accidental temperature of their skin, has been too much overlooked. In consequence, the terms cold, tepid, and warm, as indicating the temperature of baths, are employed in so vague a sense, as well in the writings of medical men as in popular discourse, that the directions for bathing laid down in the former became useless, and personal experience an unsafe guide. The same bath being pronounced cold or tepid, warm or hot, by different persons, or even by the same person at different periods.

We are acquainted, indeed, with no work, heretofore presented to the public, from which can be obtained a full and satisfactory account of the different kinds of baths, and the rules for their judicious management. The work of Dr Bell, therefore, the title of which is placed at the head of this article, we consider a well timed and acceptable offering to the profession, and to the public generally. Availing himself of the labours of others, as well as of his own ample experience, the author has attempted to lay before his readers a correct statement of the particular effects produced upon the system by immersion in cold, warm and hot water, or vapour, and the particular circumstances under which one or other of these varieties of bathing is to be recommended or prohibited. In this attempt, we feel pleasure in saying, that in our opinion he has been completely successful. While the physician will derive from its pages much useful information; the plain and unpretending style in which the work is written, will enable the unprofessional reader to consult it with advantage, in reference to the employment of bathing, for the maintenance of personal purity and the promotion of health generally. Its publication will, we trust, cause the bath to be more generally resorted to in the treatment of disease, and render its use more popular among every class of our citizens as an important hygienic agent.

The first chapter is devoted to a short, but extremely interesting sketch of the history of bathing—the arrangements for its employment among the Greeks and Romans, and the manner in which it is practised, at the present day, by the Russians, Finlanders, Turks, Persians, Egyptians, Hindoos, and American Indians.

The second chapter treats of the structure and functions of the skin, its connexion and sympathies with other organs, and the manner in which it is affected, and through it, the system generally, by heat and cold, but especially by the application of water at different temperatures. From the author's summary of the subjects discussed in this chapter, we present the following extracts, not that they contain any thing of which the well informed physician may be supposed inogrant, but because the facts set forth in them constitute the foundation of all that is subsequently advanced on the effects and management of bathing. It is important, therefore, that they be kept constantly in mind.

"7. The influence of the skin over the animal economy must be manifestly great, and of course the operation of the agents, by which it is impressed, ought to be familiar to us. These act in two ways. 1. By exciting or diminishing its nutritive functions of absorption, and secretion and excretion; and, 2. By increasing or diminishing its sensibility and sensations.

"Bathing affects it in all these ways: by softening the cuticle or outer hard lamina of the skin, a more ready entrance is afforded to water and other fluids, and by subsequent friction, this part more readily peals off, so as to leave the skin more delicate for the discharge of its various functions: in addition to this, baths by their temperature acting on the sentient extremities of the nerves, and the minute blood-vessels blended with them, will either accelerate or retard the functions, according as the medium in which the body is immersed be hot or cold.

"8. Simultaneously with these changes in the functions of the skin, or immediately consequent upon them, will be changes in the nervous system in general, and in the circulation, respiration, digestion, and various secretions, by the links and means already designated.

"9. The effects of bathing are relative to the temperature of the fluid and that of the living body to which it is applied.

"10. The medium temperature of the human body is from 96° to 98° Fahrenheit. The warmth is less at the extremities than in the central parts of the body, so that in this respect there is often a difference of 6° or 8° between the hands and the armpit, even when the former do not feel at all cold to their possessor."

"12. The air in which we live being almost always of a lower temperature than that of the body, there is a constant evolution, and discharge of caloric from the latter into the former. This loss would become excessive in low temperatures, but for the covering of the skin, which is a bad conductor, and the protection afforded by clothing of woollen, or furs, which are also imperfect conductors of heat.

"13. In the winter season, and in cold climates, the digestion is more vigorous, respiration fuller and complete, and nutrition more active; there is, in fine, an activity of all the organs of internal life, by which caloric is secreted. The absence, in a great measure, of sensible perspiration, or sweat, prevents the loss of heat by evaporation, and the skin from being such a good conductor as in the opposite state of things.

"14. The excitement produced by living in air of an elevated temperature, is moderated by the increased cutaneous secretion, or sweat, and consequent evaporation.

"15. Our sensation of heat will mainly depend on the proportion between the formation of caloric in the organs of the animal economy, and its expenditure by the surrounding air and inert substances with which we are in contact.

"16. Habit reconciles us to a wide range of atmospherical temperature. Cold air, unless so extreme as to benumb the nervous expansions of the skin, and enfeeble the nervous energy and functions generally, and hot air, equal to, and sometimes exceeding the medium temperature of the body, unless perspiration be suppressed, are both well borne. In both the average heat of the body remains the same.

"17. The exhausting effects of cold, always readily felt at the extremities of the body, must be obviated, by attention to all the means, already indicated, for giving energy to the system, or in other words, increasing the action of the minute vessels and nerves of the organs, by which caloric is evolved.

"18. The more vigorous the circulation and nervous energy, the better can cold be borne. External heat, then, by exciting the functions, and contributing to the evolution of animal heat, enables us the better to resist cold. This must be understood of the equable operation of external heat, and its not being continued so long as to exhaust the minute vessels of the skin by copious perspiration, and of other parts by abundant discharges.

"19. The medium temperature of the body is less in infancy and old age, and the ability to resist at these times the exhausting effects of cold is also less.

"20. Inordinate heat of the body is felt when the cooling processes, by perspiration and evaporation, are checked. It then becomes necessary to moderate the excessive action of the organs of the body, from all of which the caloric is evolved. This is best done by cold applied to the skin, or by means of cold drinks to the stomach, and cold injections into the intestinal canal.

"21. Our sensations of heat and cold vary, according to the conducting power of the substances applied to our bodies, and the suddenness of the change in the temperature of the medium in which we are placed.

"22. Unaccustomed as we are to immersion in a watery medium, added to its ready conducting power, prevents us from experiencing any very decided sensation of warmth in a bath of less temperature than that of the human body, or at least, of its extremities."

This chapter closes with some judicious observations on the clothing worn next the skin. The author conceives that in cold and variable climates and seasons, they alone can, with propriety, dispense with wearing flannel, "whose circulation and vital functions, generally, are vigorous, and whose skin is habitually warm, that is developes animal heat largely." In persons, however, in whom "the circulation is languid, the skin, and especially that of the extremities, frequently cold, and digestion slow, flannel is of the first necessity during nearly eight months of the year in our climate." They, also, whose employments are such as to expose them to sudden transitions from heat to cold, or who are subjected to excessive labour or exercise in the open air, so as to induce sweating and fatigue, will find in an inner garment of flannel an important preventive from disease. "In a disordered state of the body, as in catarrh, asthma, rheumatism, and bowel disease, it is necessary that flannel should be worn next to the skin; at least the omission would be attended with risk." To derive, however, from the use of flannel the good effects it is capable of producing, its use must be accompanied with the following conditions:

"1. That it be regularly and at short intervals changed, its use during the night, with the exceptions already indicated, being dispensed with. 2. That it be not tight to the body, nor of a texture firm and thick by much washing. 3. That friction of the skin with a coarse towel or flesh brush be practised night and morning; and sponging this surface with cold or tepid water according to the season and the temperature of the skin, be had recourse to, before friction, every morning, or at least on alternate days. In cases where the skin is not of uniform warmth and is readily chilled, it will be sufficient to use the sponge well squeezed, and just moist, or perhaps damp, renewing, of course, its immersion in water, and subsequent squeezing several times during the operation of sponging the skin with it. This last condition can be carried into effect by most persons, but there are some who invariably suffer during the colder months, from even sponging their surface with water of the temperature of the air, or under the degree of decided warmth. To such, a warm bath twice a week will be advantageous."

In the ensuing chapter, (Chapter III.) we are presented with the author's division of baths, which is into *cold*, *warm*, and *hot*. This he conceives to be the most simple and natural division, being the one recognized by our sensations, and the most applicable to the purposes of hygiene and of medicine.

"The intermediate degrees between positive cold and warmth, are vaguely expressed by the terms cool and tepid, but for all practical and available purposes," Dr Bell remarks, "it will be sufficient to include the first of these, or cool, under the distinct head of cold, while the second, or tepid, will be classed with that of warm."

We have already noticed the loose and indefinite manner in which the terms cold, tepid or warm and hot, are employed by writers on the subject of bathing. From this want of precision, the utmost difficulty has arisen in deciding upon the applicability to particular cases of the directions which are given for the management of the bath, and no little discrepancy of opinion between different authors as to the general or relative effects of the different kinds of baths.

The term tepid is applied by Currie in one part of his work on the effects of water, &c. to water, the temperature of which is from 87° to 97° of Fahrenheit, while in another, the temperature of the tepid bath is said to be from 92° to 96°. By the term *cool*, says the same writer, I indicate the temperature from 87° to 75°. "Now," observes Dr Bell, "87° represent tepid, as nearly as may be,—a tepid bath, which we have seen, this author considers to range ten degrees higher. Saunders speaks of Buxton as celebrated for its warm spring; and again tells us, 'that its temperature in the gentleman's bath, is invariably 82°, which, therefore, entitles us to consider Buxton water as a *thermal* spring, though but low in the scale of these natural waters.' Now, both of these terms, *which* I have italicised, are wrongly applied, and must increase the difficulty of classification. Saunders's warm and thermal come within the range of Currie's cool bath, and the limits assigned by the latter to cool, will include, by several degrees, what is called warm by the former." According to Willich, a cold bath is one of a temperature, varying from the 33d to the 56th degree of Fahrenheit; a cool bath, one of a temperature between 56 and 76 degrees; a warm bath one the temperature of which is above 76 and below 98 degrees; and a hot bath, one which has a temperature above 98 degrees. Dr Parr, who has written a very interesting thesis on the subject of bathing, places the proper temperature of a cold bath between 62 and 72 degrees; of a tepid bath between 72 and 96, and of a warm bath between 96 and 106 degrees. It is true that many individuals of robust constitution, and in whom, from the freedom and activity with which their respiratory, digestive, and circulatory functions are carried on, there is a permanent excess of heat on the skin, will experience from immersion in the warm bath of Willich, and the corresponding tepid bath of Parr, no sensation of chillness; but upon the majority of those, at least, who have been subjected for a few years to the enervating influence of civic life, both these baths will produce the effects of an ordinary cold bath.

Dr Bell applies the term warm to a bath the temperature of which ranges from 92° to 98° of Fahrenheit.

" A bath of 92° to 94°, as of a temperature equal that of the extremities and most of the external surface, will," he remarks, " at first feel warm, and to some will continue to convey the sensation. But we believe that after a short immersion in it, there will be a slight feeling of uneasiness, or at least want of the complete and diffused sensation of warmth."

This has reference, however, only to the common healthy condition of the animal economy, where the evolution or supply of heat in the system and discharge or loss from the skin take place with regularity.

" In other conditions, as where the skin of an individual feels to himself habitually hot, where it has been thrown into a state of excitation by active exercise, short of sweating and fatigue, or by stimulating drinks and medicines, then the evolution of caloric being excessive, a bath of even a lower temperature than that mentioned above will be called warm, because it will not exhaust or convey off the caloric so fast as it is formed. These persons, immersed in water of 90°, or even 88°, may call it warm, at least they will declare that it conveys no sensation of chillness or coolness. But, if we have regard to the declaration of a large majority of those who have recourse to the warm bath for hygienic purposes, and who retain their healthy sensations, we are safe in taking 95° of Fahrenheit as indicating the temperature of this kind of bath ; and if we take the space of six degrees, three above, and three below this standard, we shall have a sufficient latitude, viz. from 92° to 98° for the warm bath, and every reasonable adaptation, within these limits, to individual peculiarities, whether of animal temperature or sensibility. If an extension of the scale be thought necessary, experience and authority agree in making it downwards, that is to say, as low in the thermometer as 90°, but in very few cases, indeed, could an extension upwards, or above 98°, be admitted, consistently with the general indications, for using the warm bath, or the effects which follow its use.

" Immersion in water, of a temperature ranging a few degrees below 92° or 90°, if we admit this latter to be as the lowest limit of the warm bath, gives rise to no very decided sensation. It constitutes a tepid bath, which some call pleasantly warm, others cool, or which agreeable on first immersion, will, after a few minutes stay in it, cause feelings of occasional creeping and discomfort. Its use is not to be denied, in particular cases, as a remedial agent, but we can seldom speak with any certainty of its hygienic operation, or effects on healthy persons, other than as far as it is instrumental to the general purposes of ablution, without imparting the shock to the human body which it receives from the cold bath."

Dr Bell conceives that we may estimate as the probable representative of the tepid bath, water of a temperature between 84° and 90°, or 92° Fahrenheit, but we cannot, as in the case of the warm bath, take a specified degree, respecting which there shall be a general, if not universal, accordance of opinion; that is, of opinion directly deduced from sensation.

"Equal difficulty is met with in an attempt to separate, in a marked manner, a cool from a cold bath. In both there is more or less of a shock felt, at the moment of immersion: and if we are to recognize a difference, it will mainly consist in the circumstance of the bather being soon accustomed to the cool bath, owing to his moderate loss of caloric, and his even ceasing, after a minute or two, from complaining of any unpleasant feeling of chillness; whereas, in a true cold bath, the body is in a continual struggle to resist the strong exhausting agency of the medium in which it is immersed; and the feeling of cold, though in a vigorous person it may cease to be painful, is, nevertheless continued, and in a measure uniform in its direct effects and phenomena."

According to the definition of our author a cold bath is one of 70° and under.

"In a bath of 70° and under," he observes, "there will be a pretty general sameness of sensation experienced by those using it. The shock will be evident, and there can be no hesitation in our designating it as cold. The spring water of every country furnishes a bath of this kind to the inhabitants, although there be a range of thirty degrees between the two extremes, as we find it in the northern climate of Europe, and in the West Indies."

Dr Bell restricts the term hot bath to one the temperature of which is above 98°. Immersion in water at this temperature produces upon the large majority of the human species, the stimulating effects of heat, indicated by acceleration of pulse, augmented and preternatural heat of the skin, felt especially in the cheeks and temples, with some fulness of the head and slight confusion of thought.

"If any distinction," says our author, "between different varieties of baths be of practical importance, and conducive to comfort and health, and to the cure of disease, it is that which ought to be made, and to be generally understood, between the warm and the hot bath. Much of the disrepute into which warm bathing has fallen, and most of the erroneous conceptions respecting its hygienic and medicinal powers, have originated in an oversight of this distinction, and in confounding two agencies and modes of impression, the effects of which differ from each other in a most marked manner.

"Vapour baths are to be regarded as affecting the animal economy, in virtue, mainly, of their heat, when they are of the dry kind, and of their heat and moisture when they are the product of hot or boiling water. They are also susceptible of another division, viz. into *simple* and *medicated.* The first, when they consist of merely hot, dry air, or watery vapour; the second, when holding in solution or suspension various medicinal substances. The effects of vapour, whether of the dry or moist kind, applied to the human frame, are also greatly modified by the circumstances of its application, that is, whether the whole body be immersed in it, so that it shall be inhaled, and applied to the lining membranes of the lungs, or only to the skin, the head being free, and a direct communication established with the common atmospherical air.

"Earth or mud baths act in nearly the same way as moist vapour baths."

The fourth chapter treats of the cold bath, its effects, the circumstances under which a resort to it is proper or otherwise, the diseases in which the cold bath or the application in various ways of cold water to the skin is serviceable, and of the use of cold affusions and dressings to wounds, ulcers and other external injuries.

The cold bath was no doubt the one first resorted to as a means of refreshment and recreation, especially in warm and temperate climates, and during the summer months in the more northern. It is the one, also, which is the most generally adopted by savage nations, whose bathing place is generally the nearest river, or, when convenient, the sea. The temperature of the cold bath, when ordinary river or spring water is made use of, will, of course, vary with the climate and season; seldom sinking below 40° or rising above 70°. Now, although immersion in water of this temperature will be readily borne by an individual in the full vigour of health, and who is not, at the time, labouring under exhaustion from fatigue, profuse perspiration, or exposure to intense solar heat, it is by no means adapted for general use. Its employment requires a very considerable degree of circumspection. To a large class of persons it will prove decidedly injurious. It is capable of being applied, with various modifications, much more extensively as a remedial agent than as a means of preserving health.

The effects of cold water on the body when immersed in it have, it is true, been very generally considered as those of a tonic, communicating firmness and vigour to every part of the frame. It is not surprizing, therefore, that from an early period it should have been resorted to as a means of strengthening the constitution of the feeble and valetudinary, and be made to constitute an important item in the physical education of youth. Indeed, until a very late period, even by many at the present day, we find the same opinion and appropriation of the cold bath maintained and recommended. The opinion, however, is entirely unfounded, and the practices which have grown out of it have been productive of very serious mischief. Dr Bell has very satisfactorily shown, in the work before us, that the cold bath, so far from increasing the strength and energies of the system, on the contrary, diminishes them; that it is not a tonic, but a very powerful sedative, and that its depressing effects are in a direct ratio with the feebleness or exhaustion of the individuals subjected to its influence. This is proved by the effects of cold upon hybernating animals, and upon very young animals not of this class. In both, respiration and calorification are comparatively feeble, they are therefore illy able to resist cold, the direct tendency of which is to depress still more these two functions, "so that less air is inhaled and consumed, and less heat evolved; and, at the same time, to produce a general torpor of the other functions, and especially of the nervous system."

That by the cold bath the actions of life are diminished, not increased, the author further proves by a review of the phenomena to which it gives rise. On immersion there is first experienced a general chill or shivering, indicated in familiar language by the word shock.

"The skin is pale and shrunken, and not, as erroneously supposed, in a state of increased contraction or spasm. The prominence of the papillæ, and roughness of the skin at this time, are not the result of an active process, but of the emptying and collapse of the numerous cutaneous vessels which leave the papillæ projecting, as it were, and cause, at the same time, a greater hardness of the skin.

"That there is really a shrinking of the vessels of the skin, diminished fulness, not only of them, but of the vessels in the cellular tissue beneath, we have good evidence in the familiar fact of a ring, which before the wearer's entering the bath just fitted the finger, or was perhaps rather tight, being found inconveniently large after coming out from it. Nor is the diminished paleness, fulness or plumpness of the outer surface evinced in those parts alone which touch the water. A cold bath, coming up only to the middle of the body, even a cold pediluvium or foot bath, will remove the colour from the cheeks and give them, in persons of ready sensibility, a comparatively shrunken appearance."

This shrinking or collapse of the capillaries occurs also, Dr B. maintains, internally on the pulmonary and digestive mucous membranes, with which the skin directly sympathizes. This is proved by the diminished heat and moisture of the air exhaled—by the absence of thirst—the diminished redness of the tongue, and by the want of the dry and parched state of the latter, and of the fauces generally, attendant upon a highly excited state of the gastro-intestinal circulation. The bluish hue of the lips and other surfaces is attributable to the interruption in the capillary circulation both of the lungs and skin.

As it regards the brain, the author denies the generally received opinion, that the collapse and diminished activity of the external vessels are replaced by an accumulation of blood in that organ.

"The functions of the brain are vigorous in proportion to the amount of blood distributed to this organ; and it is only when the supply is excessive that the mental faculties, for a while preternaturally active, become perturbed and weakened, as in the state preceding delirium and apoplexy, and pending these maladies. But no symptoms analogous to these are discovered on immersion in the cold bath, and when the presumed determination of blood to the brain is supposed to exist. From the first application of the cold fluid, there follows impaired mental vivacity; the person feels dull, has his range of ideas limited, and perceptions blunted; he is torpid, but it is the torpor of gradually abated cerebral circulation, unaccompanied by those sensations of fulness, and singing in the ears, which would be caused by undue determination of blood to the part."

As a necessary consequence of the diminished activity of the brain and nervous system generally, produced by the cold bath, there is, also, a diminution of muscular power. The muscles are thrown into a state of inaction: "their fibres approximate passively, owing to the distending fluids being withdrawn, and they are less bulky than usual."

That the cold bath exerts a sedative influence upon the action of the heart, is evinced by the diminished frequency of the pulse. Currie found, in one instance, the pulsations at the wrist to decrease uniformly from ten to fifteen beats in a minute, becoming, at the same time, firm, regular and small. "Athill, though he expressly states that the pulse is greatly hurried during cold immersion, admits its subsequent retardation, and tells us that it is diminished in frequency from seventy-six to sixty beats in a minute, in water of 52° of Fahrenheit." Marcard declares that the cold bath uniformly renders the pulse slower, and that the longer the continuance in it is prolonged, the greater is its sedative power: in his own case he found, after remaining in the water an hour and a half, the pulse fell from sixty-three to fifty-four beats in a minute. In regard to the influence of the cold bath upon the pulse there is a slight discrepancy in the statements of writers. Thus in the experiments instituted by Stock, he found, in general, the pulse to be quicker and weaker immediately after immersion; in a few instances, only, was it slower. Dr Parr remarks that this was also his experience, but that at a later period the pulse became usually more slow and full. In an individual labouring under a slight attack of fever, he found the quickness of the pulse to become greatly diminished in the cold bath. Other authors have found it invariably to become slower; their observations were drawn, however, from the partial application of cold water.

"But," remarks Dr B. "whatever doubts might have existed respecting the direct sedative and depressing effects of the cold bath, must be dispelled by a knowledge of its effects on the calorification or the formation of animal heat. When we discover that the evolution of caloric is less, and the ability to furnish it is diminished, we are satisfied at once of the feeble functions of the three systems, pulmonary, capillary, and nervous, since it is on the combined energy of these that the formation of animal heat in the economy mainly depends. Not only are we apprized of this diminished temperature by our sensations, but we also learn the fact by the application of the thermometer to a part of the body, under the tongue, to which the water has not access. Even for some time after leaving the bath, and when we feel a glow of pleasurable warmth, the temperature is still less than before immersion*; showing how profound was the sedative impression on the nervous system produced by the cold of the water."

These effects occur whether the individual be immersed at once in cold water, or is gradually subjected to the operation of cold by being placed in a warm bath of 98°, the temperature of which is lowered gradually by the introduction of cold water. For this statement is adduced the authority of Giannini.

Agreeing entirely with our author that the effects of the cold bath upon the system are decidedly sedative, we, nevertheless, cannot go with him the full length in denying that simultaneously with the diminished circulation in the capillaries of the external and internal surfaces, it produces a determination of blood to the larger vessels, especially the venous trunks of the abdomen, thorax and brain, or rather that upon the application of cold to the skin, a passive engorgement of these vessels occurs. This we know to be the case during the cold stage of an intermittent, the phenomena of which closely resemble those from the effects of cold.

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* Currie.

On leaving the bath, while the bather is still exposed to the air, the sensation of cold is increased, and, usually, is attended with shivering. There is, also, a still further reduction of animal heat. These effects are most strikingly evinced when bathing has been practised out of doors; in which case, a current of air passing over the naked skin increases the coldness of the body by causing evaporation. When, however, the surface has been fully dried, and the customary garments resumed, the bather begins to experience a glow over the skin and a feeling of general warmth; a restored equable circulation takes place, with vivacity of the senses, and readiness to engage in muscular movements. It is these secondary effects of the cold bath, which have given rise to the erroneous supposition of its stimulating and tonic effects: Dr Bell, however, has shown that so far from there being any actual increase of heat, the thermometer applied to the skin, indicates, that it has not, at this time, even its customary temperature. "The glow experienced is merely relative to the cold medium in which the body has been immersed a few minutes before." There is, also, still a diminished excitement of the organs of sensation and motion.

"And hence," he remarks, "on coming out of the bath, the accumulated nervous energy enables the individual to perform, for a time, the various functions with considerable promptitude and energy. The animal economy in such a case has not been stimulated; it has not by any means received a direct accession of strength; it has merely been allowed, in a measure, to rest and enjoy comparative exemption from the operation of agencies which, in their very nature, are more or less exhausting. It has in fact been placed in a state somewhat analogous to sleep, with this difference, that the cold has exerted its sedative influence more particularly on organic life or the nutritive viscera, while the quietude of sleep is more especially evinced in the organs of animal life or of relation."

In individuals of feeble constitutions, or in whom the energies of life are reduced, from any cause whatever, the secondary effects of the cold bath just alluded to do not take place. In them, on the contrary, the sense of coldness, shivering, languor, dulness of the senses, disinclination to thought and motion, with pain in the head and joints, and feeble pulse, still continue, and may persist for hours or even days, which is another evidence that the cold bath does not act by invigorating but by decreasing the powers of life.

From what has now been said of its effects, and the subject is enforced and illustrated to a much greater extent by our author, it is very evident that they alone can use the cold bath with comfort and advantage, who are of a sanguine and robust constitution, in whom the animal heat is habitually great, or rather in excess, and who have been subjected to no cause, by which the activity of their vital functions has experienced a temporary depression. To all who are differently circumstanced, the cold bath cannot fail to prove a source of present discomfort, if not of permanent injury.

"If had recourse to in infancy and early life, it furnishes a very good test of the innate vigour of the individual; the robust child will probably bear well the application; he will often thrive *while* using it—though it may not be on account of using it. But the thin, delicate, and feeble infant, whose temperature is already too low, and whose functions react imperfectly under any depressing agency, will be permanently and prejudicially affected by cold immersion."

Dr Bell proceeds next to the consideration of the therapeutical application of cold water to the surface of the body by *immersion*, *affusion*, *ablution* or sponging, and *douching* or the spout bath. The effects of cold water upon the system being shown to be those of a sedative, the cases of disease in which, alone, it can be resorted to with advantage, are of course those marked by excessive excitement, either of the general circulatory system or of the capillaries of a part, especially when accompanied with considerable increase of the heat of the surface.

In the extensive class of morbid affections generally included under the head of fevers, the application of cold water to the surface is productive of the very best effects. Though occasionally adopted from a very early period, at different times, and in various countries, it was not until the appearance of the work of Dr Currie of Liverpool in 1797, that the practice of bathing in fevers, was fairly introduced into curative medicine in a systematized shape: and although since that period, experience has fully proved its efficacy, yet from various prejudices existing in the public mind, and a remissness on the part of many practitioners to avail themselves of the remedy, it is still employed to a far less extent than its importance demands. In those forms of fever, "in which the evolution of heat is excessive, the skin acrid and hot to the touch, either partially or entirely, the brain affected with delirium or stupor, thirst urgent, tongue either dry and furred, or red and shining, or darkly incrusted; cold immersion or affusion, and, still more frequently, cold ablution or sponging, have been found signally efficacious." The abatement or all the morbid symptoms and the return of comfortable feelings to the patient from the application of cold water to the skin, in these cases, are sometimes experienced with surprising promptness—in every instance, the duration of the disease is materially shortened, and the certainty of its favourable termination is increased. The directions given by Dr Bell for the use of the remedy in the various forms of fever are extremely judicious—for them, we must, however, refer our readers to the work itself.

In the different hemorrhages, the application of cold water to the surface, is, likewise, a remedy of no mean efficacy. In epistaxis, popular experience had early shown its good effects, while in discharges of blood from the uterus, its employment is directed by nearly every physician, and by many is relied on to the exclusion of all other means. In hemoptysis, however, although it has received the sanction of several distinguished members of the profession, by others of equal authority it is deemed a doubtful or hazardous remedy. This opinion Dr Bell conceives to be unfounded; he strongly advocates its employment, as well from the result of his own experience as from that of others. He maintains that the remedy acts in arresting the hemorrhage from the lungs, by producing "simultaneously with the torpor of the capillaries of the skin, that of the minute vessels of the pulmonary mucous tissue." In vomiting of blood, hemorrhage from the bowels and bladder, and in hemorrhoides, the application of cold water is equally beneficial. In local inflammations, externally situated, the beneficial effect resulting from the application of cold to the seat of the disease is admitted by nearly every physician; in inflammations, however, of internal organs, if we except the brain, there is considerable diversity of opinion as to the propriety of the remedy. Thus while many of the French, and a few English practitioners admit, that cold applications to the epigastrium, surface of the abdomen, pubes, &c. are proper in inflammations of the stomach, bowels, uterus, and bladder, others consider them to be productive of injury; and we believe there are but few, if any, who would advocate their use to the chest in inflammations of this cavity. In all active inflammations of the internal organs, except in those of the thorax, we have reason to believe that the application of cold will be found beneficial. Upon this point, Dr Bell has given no decided opinion.

We cannot follow our author in his remarks upon the external use of cold water in cases of burns, sun-stroke, poisoning from opium and other narcotics and from hydrocyanic acid, and in asphyxia from deleterious gases, in various convulsive diseases, in constipation and ischuria, and in wounds, ulcers, and other surgical cases. We recommend this part of the work, however, to the attentive perusal of the younger members, especially, of the profession.

Sea bathing is the subject of the fifth chapter. The temperature of the sea water along the Atlantic coast, differs but little from that of the cold bath, at least, during that season of the year when the sea shore is generally resorted to by invalids and others; being from 60° to 80° of Fahrenheit. Sometimes it is even higher, so as to some of a sanguine temperament to feel actually warm. The temperature varies a few degrees, according as the tide is at its ebb or flow, and, also, with the hour of the day. The general remarks made in reference to the cold bath, will apply, consequently, equally to bathing in the sea. The shock, on immersion, is, of course, less than in the former, the temperature of which ranges from 40° to 60°; but it is still generally felt, and is followed by the other effects experienced from immersion in cold water. "The difference is in degree, not in kind, and merely amounts to the greater ability in persons whose excitement is but moderate, to tolerate the sedative effects of sea bathing, and to react after coming out of the water."

The effects of sea bathing are modified, however, by the circumstances under which it is made use of, and the effects on the skin of the salts with which the water is impregnated. Immersion in the sea is usually preceded by some degree of exercise, in walking or riding to the beach, and is accompanied by some muscular exertion, in struggling against the waves, or, in the more robust, by attempts to swim. The dread of danger, likewise, which many experience, on entering the sea, powerfully affects the nervous system, causing hurried breathing and accelerated circulation. To which is to be added, the effects from exposure to often a cool and keen wind from the sea, which on our coast must of course be easterly. From the slower evaporation of a saline, than a simple aqueous fluid, the skin, after bathing in the sea, becomes incrusted with saline particles, which, in consequence of the friction produced by the clothing, causes a gentle stimulation of the surface. "That such incrustation is really formed on the skin," remarks Dr B. "in consequence of bathing in the sea, one may easily satisfy himself, by applying the tongue to any part of the body, even after several days have elapsed from the last time of bathing." It is from this cause, probably, that is to be explained the generally admitted fact, that persons of even comparatively delicate habits, are less susceptible to take cold after being wet with salt than with fresh water.

The stimulus of sea bathing, as our author remarks, is not referable to the salt water, but to the saline particles deposited and left on the skin after it is dry; it is, of course, secondary, and cannot modify the direct or immediate effects of immersion; these are such as must necessarily be experienced from other varieties of cold bathing. "The chief exception is in those cases in which the skin itself is the seat of irritation and disease, and in which the stimulus of the saline particles deposited during the bath proves prejudicial."

Sea bathing cannot, with propriety, be resorted to by the delicate and valetudinary before the middle of June, nor after the first week or middle of September. The cold rains and easterly wind, which occur previously and subsequently to this period of the year, are more or less prejudicial to the individuals alluded to. Such are, indeed, severely tried, in the midst of July and August, by easterly gales, which are peculiarly searching and distressing.

The author presents some judicious remarks on the manner of sea bathing, and complains, with just cause, of the want of proper facilities and aids for bathing along our sea coast, in consequence of which, the benefits to be derived from immersion in the sea are in a great measure counteracted. Some judicious hints are likewise presented for remedying the inconveniences complained of.

The observations of Dr Bell on swimming, contained in this chapter, are in the highest degree appropriate. It is recommended as a healthful exercise, counteracting in a great measure the depressing effects of the cold bath, and hence enabling a much larger class of persons to avail themselves of its use; and as an accomplishment calculated to secure the individual himself against danger when on the water, and to enable him to afford efficient assistance to a helpless fellow creature when accidentally submerged.

In relation to the proper time for using the bath, this, whether it be of common or sea water, warm or cold, is invariably before a meal, and never on a full stomach, or during the first stage of digestion. The morning is the period generally directed as most appropriate for sea bathing. It may be so considered, provided the individual rise from his bed, and reach the beach with a warm or hot and dry skin; at no time of the day is immersion in the sea, or in a cold bath, admissible, should the skin be cool, chilled or perspiring.

"Persons," remarks the author, using the language of Buchan, "in feeble health should content themselves with a walk in the open air before breakfast, nor should that be continued beyond the first sensation of fatigue. The time of bathing ought to be postponed until past noon, or at least some hours after breakfast, when the digestion of that meal may be supposed to be terminated; and such a degree of exercise should always be taken previously to entering the water, as may be sufficient to produce a general sensation of warmth over the whole body."

The time of increased heat and flushing, it is subsequently observed, is precisely that in which the bather ought to visit the beach, with this important proviso, however, that this time do not correspond with the first period of digestion, or that immediately succeeding a meal. Persons in full health, who resort to the shore for variety and pleasure, need not be very particular as to the hour when they bathe, or the period during which they remain in the water, provided that they do not enter it immediately after a meal, nor during the state of lassitude produced by excessive bodily exertion, late hours, or by undue indulgence in much eating, or by drinking strong drinks. For the precautions in regard to the length of time the invalid should remain in the water, we must refer to the work itself.

As it respects the therapeutic application of sea bathing, the same remarks, with some few exceptions which we shall notice, will apply as in the case of the simple cold bath.

Scrofula is the disease in which the remedial effects of sea bathing have been the most generally and highly praised; and in individuals of a scrofulous habit, Dr Bell conceives that sea bathing is a less equivocal remedy than the simple cold bath. "It abates the undue heat and dryness of the skin, and the excitement of the vessels, especially of those minute capillaries, the morbid action of which so conspicuously keeps up the diseases of the glands, and other parts of the animal economy." Ulcerations of the hairy scalp are benefited by first shaving off the hair, and then frequently sponging the diseased surface with tepid sea water. In scrofulous affections of the joints, accompanied with ulcerations outwardly, salt or sea water has always been a favourite local application. In dyspepsia, hypochondriasis, and their numerous associated ailments, such as sick headach and palpitation of the heart, to which we vaguely apply the epithet nervous, together with the kindred affections in the female sex, hysteria and chlorosis, sea bathing is beneficial when these have been mainly the effect of deficient exercise, late hours, and close atmosphere, and are accompanied with a hot and dry skin, and frequent pulse, or at least with daily paroxysms of this nature. According to Dr Bell, sea bathing has also been found of advantage in chorea, the second stage of pertussis, and in convulsive diseases generally, when accompanied with vascular excitement; in asthma from chronic congestion of the pulmonary mucous tissue; in aphonia, the febricula of the sedentary, or those who have laboured under more violent remittent fever; in certain cases of obstinate intermittents; and in individuals predisposed to rheumatic and catarrhal complaints. Its use he considers to be hazardous or injurious in inflammations of internal organs; in the incipient stage of consumption; in hemoptysis; in diseases of the skin, of an acute or subacute character, unless the surface be washed immediately afterwards with simple water; and in affections vaguely termed bilious. On no one of these points, will the space to which we are confined allow us to enter into details. The chapter concludes with some pertinent general remarks addressed to invalids visiting the sea shore.

Chapter VI. treats of the warm bath. The limits assigned to this form of bath by the author, it will be recollected, are from 92° to 98° of Fahrenheit; the mean between which will be 95°.

"On immersion in water at this last degree, it is believed that a large majority of our species will experience a decided, yet pleasurable sensation of warmth; and obtain the good effects, most generally attributed to this kind of bath. An approach to the upper limit, or that of 98 degrees, will be most grateful to those persons who habitually, or from accidental circumstances, have a skin possessed of little activity, coldness of the hands and feet, and slow circulation—while the lower limit, or that at 92 degrees, will be preferred by the sanguine and plethoric with active circulation and hot skin. Between 92 and 85 degrees will be the range of that uncertain kind of temperature usually designated by the term tepid or milk warm. I say uncertain in reference to the sensations produced by immersion in it. Imparting less luxurious enjoyment, and not so susceptible of use in doubtful cases, such as in disease, and after extraordinary or exhausting bodily exertions, the tepid bath is, notwithstanding, that variety which is the best suited, as a means of public hygiene, for general bathing, and ablution and purification."

After insisting upon the importance of establishments for tepid bathing, open to all classes, as a part of public hygiene, and pointing out the intimate connection between its regular use, and the full enjoyment of personal health and comfort, the author adds,

"In these remarks on the necessity of preserving cleanliness by frequent and regular ablution, it is not intended that tepid bathing should be regarded as the only means of accomplishing this desirable end, to the exclusion of cold and warm baths, but simply, that in public and domestic hygiene, it is that variety which can be most advantageously used by mankind at large, without detriment or danger. A great many persons, in even vigorous health, cannot tolerate the cold bath for the shortest period, still less can they habitually use it with benefit. Even they who have accustomed themselves to it are in danger from the practice, if it be continued after any sudden diminution of vital energy, by whatever cause produced. The tepid bath is for the most part safe and serviceable to persons in health: and is often exceedingly refreshing to those who are excited, and the temperature of whose skin and the activity of whose pulse are augmented. Less sedative than the cold bath, the one in question is still capable of diminishing the excitement of the functions; while its immediately tranquillizing effects are followed by less marked and violent reaction, than ensue after immersion in cold water. The general resemblance between the cold and tepid bath is such, that in cases of fever with morbid heat of the skin and urgent thirst, but in which from primary feebleness of constitution, or protracted duration of the malady, the functions are so much worn down as to illy bear the powerful sedation of the former, the milder operation of the latter may be obtained with safety and benefit."

From what has been said on the effects of cold bathing, it will be readily understood, that when the grade of excitement is very moderate, and the powers of reaction weak, even tepid bathing will be followed by too great an abstraction of caloric, and feebleness of the system; it is in such cases, that the *warm bath* exerts its beneficial effects. The want of precision which has too generally been evinced by writers, when speaking of the different varieties of bathing, has caused the effects of the warm bath to be confounded with those resulting from the hot. Warm bathing has, consequently, been pronounced heating, or from notions of its mode of action on the living system, derived from the changes which dead animal membranes undergo, when immersed in warm water, it has been considered to exert upon the body a relaxing influence. Neither of these presumed effects result, however, from the use of the warm bath, properly so called. This has been very successfully shown by Marcard, in his excellent work on baths. He cites cases, which occurred under his own eye, of recovered strength under the use of the warm bath; and he adduces Falconer's experience as identical with his own, in this respect. He also enumerates various instances of persons who resorted to the warm springs of Germany and Switzerland, spending many hours at a time in the bath, without any sensation of exhaustion on the one hand, or of excitement on the other.

It is asserted by this author, as well as by most other writers and experimenters on the warm bath, that when of a temperature under 96° Fahrenheit, it diminishes in ordinary cases the frequency of the pulse, and that this reduction is always in proportion to the previous frequency and deviation of the pulse from the natural standard.

The result of some experiments performed with the view of ascertaining the effects of the warm bath on the pulse, are detailed by Dr Bell, for the purpose of showing the erroneous conclusions which are liable to be formed, when, in judging of the influence of the bath upon the circulation, the very great difference in the frequency of the pulse between the standing, sitting, and recumbent position, is not attended to.

The inference from these, and other experiments on himself, the author conceives to be, "that the warm bath has a tranquillizing effect; and by allaying excessive excitement, and moderating excessive heat, it refreshes, and in a measure invigorates." In the experiments of Dr Parr, in a bath of 96° Fahrenheit, the pulse was at first slightly quickened, but soon became natural; the respiration, in the earliest period a little more rapid, soon became free and easy, and but little change was produced in the heat of the skin. In a bath of 98°, the pulse was slightly increased in quickness, and did not subside, the heat appeared to remain stationary; there was no sweat, though a free copious perspiration; the urine was not increased; some time after coming out of the bath, the pulse became slower than before its use.

The difference between the effects of the cold and warm baths, our author considers to consist in the former producing at once a powerful depression in the circulatory and nervous functions, whereas "the latter is just in that relation with the nervous system to convey a sensation, soothing by its mildness, and active by its diffusiveness, and with the capillary system to invite blood into the smaller vessels of the extremities, which were of a temperature less than the water, and thus produce an equal yet moderate fullness and action of these vessels; an effect still further insured by the softened and diminished resistance of the external tegument, or cuticle. This equalized fulness of the cutaneous capillaries, is doubtless sympathized in, by the membraneous ones generally, and thus the heart's propulsive power is less, and its contractions are in consequence fewer, and at the same time more equable. The same cause renders respiration easier and slower." This latter effect may also be attributed to the diminished excitement of the brain. The pleasurable influence of the warm bath over the nervous system is proved by its tendency to induce sleep. The sleep here, remarks Dr Bell, is natural, and different from that fatal sleep—the torpor of the brain, from extreme cold, or from that forced sleep brought on by narcotic drugs. The soothing influence of the warm bath is, also, clearly evinced in the pleasant rèpose which it induces in the senses, the brain, and the muscular apparatus for voluntary motion, and in the harmonized action and balance of the internal or nutritive organs. We do not wonder, therefore, at warm bathing being included among the real luxuries of civilized life. The beneficial influence it exerts over the human body, by its indirectly invigorating effects, is incontestable.

The uncomfortable sensations, feelings of heat, thirst, accelerated circulation, and excited senses, consequent upon laborious exercise, or a long journey in warm weather, are all allayed or removed by the use of the warm bath; while, under the same circumstances, the cold bath would be attended with hazard at the least, often with decided injury.

"The habitually feeble and infirm, the nervous and excitable, and the cold and lymphatic constitution," says our author, "ought all to use the warm, rather than the cold bath." The same remark will apply, also, to those who are readily heated, and as readily cooled, who, though weak in their muscular movements, are prone to vascular or nervous excitement, and febrile movements from the least increase of mental or corporeal exercise and stimulation of the senses. The warm bath is likewise to be preferred by persons advanced in life, "whose functions preserve a tolerably equal rhythm, but who have little energy of reaction under depressing agencies." Independently of its other effects, the warm bath is beneficial to the aged, by softening the cuticle, the increased induration of which, in advanced life, has a tendency to obstruct perspiration.

As a remedial agent the warm bath is adapted to an extensive range of diseases. According to our author, it will greatly mitigate, and often even remove, all morbid exaltation of sensibility, acute pain, alone or accompanied with irregular and convulsive action of the muscles. Its use he conceives to be particularly called for, in the convulsions of children and the hysterical affections of females, as well as in the varieties of colic, from the simple spasmodic to the bilious and painters' (colica pictonum). "Although," he remarks, "we may not entirely cure or arrest the disease by warm bathing, we shall mitigate its violence, and gain time for the application of other remedies."

In individuals peculiarly prone to have their vascular and nervous systems thrown into a state of morbid or irregular excitement by trifling causes of irritation, the warm bath is recommended as an excellent means of soothing the nervous and sanguineous system, and of preventing a convulsive habit from being formed. In children especially, the tendency to convulsive affections is very considerably lessened by the use of the warm bath. The latter, we are told, has also been found eminently serviceable in mania and mental derangement generally, in which extreme wakefulness and dry skin are predominant symptoms. Infantile cholera, as well as that of adults, when accompanied by much coldness of the surface generally, or of the extremities, often call imperatively for the use of this remedy.

"Cholera infantum requires a bath, the temperature of which shall be in the inverse ratio of the heat of the skin; the greater and more acrid the latter, the colder will be the water, and, *e contrario*, a cold skin, especially after the disease has been of some duration, will be more benefited by warm immersions or affusions."

The warm bath is an important adjuvant in the treatment of dysentery and diarrhœa, more especially of the chronic kind. It is a remedy adapted, also, to all the diseases of the respiratory organs, "due attention being had to the stage and accompanying phenomena, and the peculiarities of constitution of the sick person."

Asthma, of the nervous or spasmodic kind, is also greatly relieved by the warm bath.

"Organic affections of the heart, of which asthma is sometimes a symptom, cannot be better treated," Dr Bell remarks, "than by the regular use of the warm bath; which is more especially serviceable if the disease have ensued on the disappearance of chronic cutaneous eruptions or ulcers."

The other diseases enumerated by the author, as those in which the warm bath is beneficial, are inflammations, especially when chronic, of the liver, and of the kidneys. Catarrh of the bladder, amenorrhœa, diseases of the skin, the forming and advanced stage of fevers, the cold stage of intermittents, eruptive fevers, rheumatism and gout, mercurial disease, paralysis, &c. For the details in regard to the use of the bath in each case, we must refer to the work itself.

When had recourse to as an agent of hygiene, the proper time for using the warm bath, as a general rule, is when the stomach is empty, and after fatiguing exercise. The continuance in the warm bath will be considerably more protracted than in the cold. In the former we may remain, for the purposes of refreshment, from half an hour to an hour. Many take a pleasant sleep in the warm bath. The chapter closes with some interesting observations on the usages, as to the time spent in the water at some of the thermal springs in Europe, and the mode of preparing a warm bath for the sick.

The hot bath forms the subject of Chapter VII. We shall be extremely brief in our notice of this portion of the work, not because the author's remarks are devoid of interest or instruction, but from the hot bath being seldom intentionally resorted to, in this country at least, for hygienic purposes, for which, in fact, it is, as he states, but illy adapted; and from its being applicable as a therapeutic agent to a much less extensive range of cases than either the cold or warm bath. The space, also, we have already occupied, and our desire to notice the remaining chapters of the work, render such conciseness indispensable.

A hot bath is one in which the temperature of the water exceeds 98° Fahrenheit. It exerts a decidedly stimulating effect upon the individual immersed in it, evidenced by the increased redness of the skin, the acceleration of the pulse, turgescence of the superficial vessels, and increased frequency of respiration. The face soon becomes bathed with a copious sweat, the arteries of the neck beat with more frequency, the mind becomes obtuse and inattentive, and even vertigo and apoplexy have been known to supervene. If prolonged to excess, the hot bath produces invariably an enormously increased discharge of the perspirable matter. A bath of very high temperature is, consequently, intolerable to those of delicate habits, it being a stimulus disproportioned to their exquisite sensibilities, while to those of robust and active habits it becomes injurious, by adding the stimulus of caloric to the action of those powers which induced and maintain the excitement of the system at too exalted a grade.

"The few circumstances under which hot baths can be of any utility, demand, at least, a certain degree of inertia on the part of the subject on whom they are tried, which may be either the accompaniment of a phlegmatic temperament, or the consequence of protracted disease, without which they can by no means be tolerated."

Dr Bell subsequently remarks, that the sanguineous, the robust, the plethoric, those with full large heads, and who are inclined to drowsiness after any little exertion or after a meal or who are liable to spitting of blood, or whose skins are acutely sensible to heat are, in general, those who should avoid the hot bath.

"We should probably be still more correct and better understood," he adds, "if we were to say, that persons in health ought never to make use of the hot bath alone, without subsequent refrigeration; nor ought those liable to, or at all suffering under fever, with acute pain or hemorrhage of any kind, to have recourse to it. The hot bath is, on occasions, a useful remedy in the hands of a physician, but it requires great caution in prescribing it, and great discernment as to the circumstances under which it should be used, as well as the duration of the period of each bathing, and the precise temperature of the bath. The cases to which this remedy is adapted, are those of inertia, torpor, sluggish circulation, dry and cold skin, with feebleness of muscular movement and a low grade of sensation. But here let us avoid confounding the state of the system naturally feeble and phlegmatic, or worn down by age and protracted disease, with the languor which follows acute inflammation or pressure of blood on the brain, causing disinclination to motion, or in the lungs giving rise to slow stertorous breathing or asthmatic panting. In the first class of cases, the hot bath would be serviceable; in the latter prejudicial."

The diseases particularly enumerated as those coming within the limits of the first of these classes are bronchitis and pneumonia occurring in old people who have been greatly exposed to cold and damp, badly fed, and of intemperate habits; cases of croup and bronchitis occurring in children, and accompanied with complete torpor of the whole capillary system, evinced by coldness of the surface and extremities and of the breath, hurried and laborious respiration, &c.; the cholera of adults, when the skin, particularly of the extremities, is of an icy coldness, pulse small and fluttering, features shrunk, and all the symptoms of approaching dissolution present; the latter stage of infantile cholera; and certain chronic affections of the skin. In stiffness of the joints from old sprains, and from chronic rheumatism and gout, the hot bath exerts a marked and beneficial effect.

In a former part of this chapter we are presented with some interesting observations on the impunity with which the living body supports the depressing effects of cold, when in a state of febrile excitement, whether temporary, as when caused by the hot or vapour bath or internal stimuli, or more lasting as in disease.

The next chapter (Chapter VIII.) treats of vapour baths. These are either simple or medicated. The first consisting of merely hot dry air, or simple watery vapour; the second holding in solution or suspension various medicinal substances. The effects of these baths vary according as the whole body is immersed, or only the trunk, the head being excluded so as to allow of the access of the common atmospheric air for breathing. "The partial application of vapour arising from hot water exerts nearly the same effect as a fomentation of the part to which it is applied."

"The temperature of a simple vapour bath, the product of warm or hot water, will vary from 90° to 150° of Fahrenheit, according to the heat of the water, or the space through which it is allowed to be diffused, and the time which has elapsed since the first formation of the vapour." When the whole body, or the trunk only is surrounded with vapour exceeding the animal temperature, a portion of the water of which it is composed is taken up by the absorbents, the remainder becomes condensed in drops upon the skin. The entire surface, after a time, becomes red and covered with a profuse sweat. The absorption of the watery vapour is in the commencement so considerable, that the fluid is not allowed to condense on the surface until the absorbents are completely filled. When at the same time the body is exposed to the vapour, it is allowed to be inhaled into the lungs, the stimulating effects of the bath are increased, and the amount of fluid absorbed is greatly augmented. The distension of the pulmonary capillaries which takes place, moderates in some degree the hurried respiration which the stimulus of heat tends naturally to produce. From the augmented amount of blood in the cutaneous and pulmonary tissues, accompanied, also, by increased exhalation, the volume and frequency of the pulse become increased. "The brain, participating by its membranes in the state of the lungs and skin, is fuller of blood than usual, and there is a tendency to sleep, or at least a general feeling of languor and indisposition to bodily exercise." Such Dr Bell enumerates as the effects of vapour at a few degrees, six or ten, above the animal heat, and in which the body has not been long immersed.

Our author presumes that the different effects of the vapour bath as a hygienic agent are to be explained upon the somewhat opposite action of the caloric, and the moisture of the vapour; the first being a stimulant, the latter soothing and sedative. "Where," he remarks, "the dose of caloric is not great, its stimulating action will be mitigated by the influence of the moisture which may even predominate and give rise to soothing and sedative effects." The aqueous portion of the vapour softens and penetrates the cuticle more completely than simple immersion in warm water. This softening of the superficial tissues allows of a greater expansion of the vessels of the cutis, and diminishes, in consequence, the state of tension to which the nervous papillæ might have been subjected. The simple aqueous fluid which is largely absorbed becomes an agreeable diluent of the more stimulating fluid which may have been in the vessels previously; the nerves, also, are pleasurably affected, as in the instance of the warm bath, by this mild vapour applied to their extremities. Hence, even should the caloric of the vapour invite a greater afflux of blood and fluids to the minute vessels of the skin, the entire effects of the vapour bath are of a soothing and sedative rather than stimulating or irritating character. The increased secretion which takes place from the skin when not excessive, is likewise often salutary. The vapour bath is chiefly serviceable, however, in restoring the due proportion between the secreting and absorbing vessels, "accelerating their circle of functions, and without undue heat or excitation causing a renewal, as it were, of the cutaneous system, that is, of the tissues which compose it." The higher the temperature of the vapour, the more decidedly stimulating will it be, and the greater, in consequence, the cutaneous excitement and duration of the heat of the system, even to the extent of simulating a febrile paroxysm.

"Nearly analogous effects to those produced by the moist vapour bath," it is added, "will ensue on exposure to a dry vapour, or air of a room heated by flues, as in the Asiatic baths; and the application subsequently to the skin of water, either by affusion or by aspersion and sponging."

The remarks of the author, interspersed throughout this chapter, on the modus operandi of vapour applied to the skin under various states of the system, are all in the highest degree important; we regret that want of room prevents us from entering into a fuller notice of them.

Our information on the remedial effects of vapour bathing is very limited.

"The physicians of Great Britain, France, and Germany," observes our author, "who have so largely contributed to swell the stock of medical lore, and practical medicine, have done comparatively little towards enlightening us on the therapeutical value of vapour."

The few publications which have appeared on the subject, are passed under review by Dr Bell. They are principally the empirical work of Dominiceti; the treatises of Sir A. Clark, Dr Blegborough, and Dr Gibney; the experiments of Basil Cochran; the short but useful essay of Marcard; Assilini's work on artificial vapour baths; the chapter of Andria on the *stufe* of Ischia; and a paper or two in the medical periodicals of our own city. From these, however, the actual amount of information to be collected, though in itself interesting, is extremely small. After enumerating the cases in which Andria and Assalini found the application of vapour to be beneficial, Dr Bell enumerates some of those diseases in which its use appears to be attended with the most decidedly good effects. He states that in cases of dry and squamous herpes, occurring in individuals of a sanguine temperament, and other chronic eruptions of the skin, the vapour bath has been found useful. It is, likewise, an excellent remedy in all those cases in which the skin is dry, harsh, and scaly, and prone to chap, especially during damp and cold weather. In syphilitic eruptions and ulcerations, moist vapour alone, or in alternation with sulphurous and mercurial fumigations, will accelerate the cure. According to Assalini, the application of vapour has been found, also, to discuss tumefactions of the lymphatic glands, especially those of a scrofulous nature along the neck. It is, likewise, a valuable remedy in those troublesome and painful affections of the joints, whether produced by gout, rheumatism, syphilis, or the excessive use of mercury. Chronic glandular inflammations, as of the liver and pancreas, and tumefactions of the spleen, are often greatly relieved, and at times completely cured, by this kind of bath. It is equally beneficial in chronic affections of the digestive passages, as diarrhœa, dysentery, and certain cases of dyspepsia. It has also been employed with decided advantage in tetanus, various cases of muscular rigidity, in cases of suspended animation, in puerperal peritonitis, and towards the conclusion of eruptive fevers, where the skin is dry and rough. It is recommended strongly by the author as a remedy in delirium tremens.

The preceding remarks in relation to the curative effects of the vapour bath, have especial reference to that form of it in which the head of the patient is excluded from the bath, so as to allow of his breathing the common air of the atmosphere. In a long list of diseases, the efficacy of the remedy is increased by entire immersion, so that the vapour is not only applied to the skin, but inhaled also into the lungs, and thus applied to their mucous surfaces. This is particularly the case in catarrh, bronchitis, croup, asthma, and in a certain stage of measles and small pox, attended with dry and parched skin. In inflammation of the throat and air passages, and other phlegmasia, the inhalation of vapour at 90° Fahrenheit is recommended by Assilini; or when the excitement was less, and the disease of a chronic character, he raised the temperature to 100°. Dr Bell believes, however, that we may agree in general with Marcard, that vapour baths under 96° have but little activity.

A short notice is next given of the experience of Dr Coxe, of this city, as to the effects of the vapour bath on various affections of the system, as given in a communication contained in Vol. IV. p. 20—27, of this Journal.

Dry sulphurous fumigations are included under the head of vapour baths. These may be applied by an appropriate apparatus to the skin of the whole body, excepting the head, or confined to a part only. By Assalini, they were employed in nearly all the varieties of disease in which the moist vapour bath had been; but with somewhat more reserve in sthenic habits, or where there was much general or cutaneous irritation. In the itch, they have been found particularly successful. In the secondary forms of syphilis, with ulcerations of the throat, blotches of the skin, nodes, and pains of the joints, according to our author, the treatment by alternate sulphurous fumigations and moist vapour, will be attended with complete success. The same course, also, will be found advantageous in mercurial or scrofulous ulcers, associated with depraved digestion. For a notice of the diseases in which the vapour bath and fumigations were used successfully by Assalini, as well as the conclusions of the medical jury of Paris on the efficacy and advantages of sulphurous fumigations, we must refer to the present chapter of Dr Bell's treatise: want of space prevents us from noticing them.

Some remarks follow on the inhalation of iodine and of chlorine, in certain pulmonary complaints, as recommended by Murray, Scudamore, Bertin, Ganal, and others. This subject we pass over, as it is to be fully considered in a review, in the present number, of the publications of these gentlemen. The chapter closes with a description of the apparatus for vapour bathing, and a reference to the circumstances under which the use of the vapour bath may prove injurious.

Chapter IX is devoted to the subject of *douching, or the spout bath.* This method of local bathing is almost entirely of modern use, and although in a great measure neglected by the English physicians and those of our own country, we have the almost concurrent testimony of the most enlightened practitioners of Europe, in favour of its singular power and utility, in a number of local and general diseases of a very intractable character.

Douches act on the same principles which govern the effects of the other baths; and hence they are susceptible of the same division as the latter, into warm and hot. Their efficacy is referrible to the temperature of the water employed, rather than to the mechanical impression, as some have imagined.

Cold douches are useful when we wish to procure a diminution of excessive excitement, as in the acute inflammation, or predominant affection of some particular organ, as well as in all those circumstances in which we wish to lower the excitement of a part, by a sensible abstraction of heat. The great advantage attending their employment is, that in such cases of excessive excitement of a particular organ, we can direct the cold to the part, without wetting the rest of the body; and still more, we can, if necessary, use the warm bath at the same time; or the head being the part to which they are applied, without losing time, we can apply counter irritants, sinapisms and blisters, to the extremities. "Hot douches are principally had recourse to in diseases of an asthenic nature, and which from their duration acquire the name of chronic."

The whole of this chapter is deserving of an attentive perusal. The importance of local bathing in a large circle of diseases, and the very limited extent to which it has been employed in this country, require, on the part of most members of the profession, a patient study of the manner of using it, the rules to be used in its application, the morbid conditions of the system in which it is beneficial or otherwise, and the circumstances under which a diminished or increased temperature of the water is demanded. On each of these points much useful information, in a condensed form, will be found in the work under review. The chapter concludes with some observations on the alleged advantages of shower bathing.

We can afford room for only a very brief notice of the second part of Dr Bell's treatise, or that devoted to *mineral waters;* a subject, nevertheless, the importance of which is but little inferior to that of bathing. In this country, where mineral springs abound, many of which have been for years fashionable places of resort during the summer season, their application to the cure of diseases has been, in a very great degree, overlooked; or, perhaps, to speak more correctly, strict attention not being paid to the relative value of the different springs, the chemical properties and temperature of their respective waters, the class of cases to which, in consequence, each one is best adapted, as well as the proper rules to be observed in their use, we have derived much less advantage from them as remedial agents, than has been derived from the mineral springs in the different parts of Europe which correspond with our own in their physical and chemical qualities. For an invalid to resort to a mineral spring merely because it is the fashion, and drink of its waters, whatever may be the complaint under which he labours, or the condition of his system at the time, with no other preparation or precautions than such as are suggested by prejudice or dictated by empiricism, is far more liable to be productive of injury than of benefit. At many of the European springs physicians constantly reside, under whose directions the waters are made use of; while, in appropriate buildings, *Maisons de Santé* and Hospitals, the sick and infirm are afforded every comfort and accessary means of relief which their respective cases may demand. The advantages to be de rived from the mineral waters of our country would be increased to a very great extent did an arrangement of a similar kind exist at some of the most frequented springs. It is important, at least, that every physician should be well acquainted with the medical properties of these springs, and the manner in which their waters are best applied for the cure of diseases; so as to be enabled, when it is considered advisable for his patients to resort to them, to lay down precise rules for their guidance. An account of the most noted mineral waters of the United States, with the morbid conditions of the system in which they are found to be most beneficial, has long been a desideratum, and although in the work before us the subject is treated of with great conciseness, the author has, nevertheless, presented a very full and useful compendium of all the leading facts and principles connected with it.

In the first chapter he treats of the accidental discovery of the virtues of mineral springs; the great estimation in which they were held by the ancients, especially the Greeks and Romans; the neglect into which they fell upon the decline of the Roman empire; the renewed attention which was directed to them towards the close of the 15th century by the Italians; and the subsequent care bestowed upon bathing establishments at different mineral springs by the French. The industry of the physicians of Europe soon became engaged in the investigation of the medical properties of the mineral springs of their respective countries, while the chemist was busily employed in determining the ingredients which enter into their composition. We have, in consequence, been presented with much useful information in regard to the virtues and qualities of the mineral springs of the old world; nor have those of our own country been entirely neglected, and we feel persuaded that the time is not far distant when our knowledge in relation to them will be as complete as it is in relation to the former.

Previously to entering upon the consideration of mineral waters, strictly so called, Dr Bell offers a few remarks upon the virtues of common water, both as an article of diet and as a medicine; in concluding which, he observes—

" We are constrained to admit that there is hardly a disease cured by mineral water, that has not been removed, or greatly mitigated, by free potations of common water.

" While I concede, to a certain extent, the sameness of operation and effects between common and mineral water, I cannot, however, admit their entire identity, as remedial agents. One very obvious difference immediately strikes us, namely, the utility of common water, or beverages consisting almost exclusively of water, with some bland substance, in fever and acute diseases; whereas mineral water is in such cases not simply of equivocal benefit, but absolutely hurtful. Again, in various chronic diseases, distinguished by inertia, a languid state of the digestive apparatus, and abundant mucous secretions, common water will be of little benefit; when, on the contrary, a fluid with saline and mineral impregnation will prove of decided efficacy. Common water acts indirectly on the organs of the living body by neutralizing noxious or acrimonious matters, and facilitating their egress. Mineral water has a decided and independent action on the same parts, particularly on the mucous surface of the stomach and intestines, and on the circulatory apparatus by absorption. I am justified, then, from all that has been advanced, as well in the first part of my subject, on baths, as in that just discussed, in laying the following propositions:

"1st. That mineral waters, used for bathing, or douching, on a sound cuticle, act mainly in virtue of their caloric.

"2dly. That when taken into the stomach or intestines they have a double operation; the one common, and generally uniform, depending on their basis, or their pure watery vehicle; the other proper and peculiar, being the effect of the saline and mineral substances held in solution.

"3dly. That if used under the form of bath or douche, the action of these chemical principles will have little or no effect except upon those parts which are deprived of their natural covering, or skin—of course no effect on the general system, except through the parts thus denuded."

A brief summary of the modus operandi of mineral waters follows. Precautions are then given against a hasty or excessive use of these waters by invalids, their effects varying with the state of the system and the quantity drunk, as well as with the intervals between drinking. The chapter is closed by a series of remarks enforcing the necessity of attention to all the other means of preserving health, while at the springs—sleep, clothing, diet, exercise, and amusements, with some particulars as to the food of the invalids who visit these places.

The second chapter relates to the division of mineral waters, and contains an enumeration of the principal thermal springs of the United States and of Europe, with the chief mineral springs agreeably to the classification adopted by the author. Dr Bell classes all mineral waters under four heads. A. Hydrosulphurous, or sulphurous. B. Acidulous, or carbonated. C. Acidulated ferruginous, or chalybeate. D. Saline.

The third chapter treats of the sulphurous or sulphuretted waters and their remedial value in various diseases. They have been found, we are informed, efficacious in relieving congestions of the veins and in chronic inflammations, either in the viscera or on the surface of the body. They purge without debilitating, and in the treatment of hepatic affections are deemed superior to mercury. Their efficacy, likewise, in chronic rheumatism and gout is well attested. To derive their full effects their use must be persevered in for a length of time, excepting when they produce some degree of febrile irritation, in which case they should be discontinued. In the diseases of the skin of a chronic character, the sulphurous waters are considered to be superior to all other remedies. They have been found useful, also, in correcting the effects of intemperance, in dyspepsia, hypochondriasis, habitual costiveness, jaundice, hemorrhoids and worms; we are cautioned, however, against the stimulating effects of these waters, especially in individuals labouring under decided phlegmasiæ, and fixed irritation in a part, as well as in those predisposed to, or actually suffering under hemorrhages. In this latter case, the sulphurous waters ought to be very weak, or taken *with* milk. The hot sulphurous waters of Bareges and Aix la Chapelle are among the most celebrated on the continent of Europe for their medical virtues. Formulæ are given for imitating these waters. In this country we have the White Sulphur Springs of Virginia, justly celebrated for their efficacy in various intractable diseases. The water of these springs, an analysis of which is given, has been found a very excellent remedy in hepatic affections and chronic diseases, following bilious fever. In cutaneous diseases and chronic rheumatism, especially, their use is to be alternated with warm and hot bathing. The Red and Salt Sulphur Springs of Virginia are likewise celebrated; the first for their efficacy in chronic affections of the abdominal viscera, and the latter for their good effects in pulmonary diseases simulating or ending in consumption, especially in the early stages. Numerous sulphurous springs exist in the western states, with a brief notice of which the chapter concludes. We have noticed barely the outlines of this chapter; for particular directions for the use of the waters of which it treats, adapted to particular cases of disease, and the circumstances under which their internal or external use, or both, will be demanded, the reader must consult the work itself.

Acidulous or carbonated waters (Chapter IV.) These waters are characterised by the predominance of free carbonic acid gas, which imparts to them a lively and somewhat stimulating taste; these peculiarities disappear in proportion as the gas escapes.

"The medical use of this class of waters is most advantageously displayed in allaying the thirst and heat of feverish action which accompanies a disturbed state of the stomach and inflammation of the liver and other viscera, and in subduing irritation of the kidneys, checking copious discharges—diarrhœa and fluor albus, &c. They are useful in cases of chronic or sub-acute inflammation, in which the sulphurous or chalybeate water, or even the compound saline, would prove too exciting. By thus allaying morbid irritation, and gently restoring the functions of the stomach and intestines, they have credit for a tonic power, which is thought to be displayed in their occasionally restoring the suppressed menstrual discharge, and dispelling the feelings of languor and melancholy so often the concomitants of dyspepsia. They sometimes cause unpleasant drowsiness and flatulency, and in apoplectic habits are to be used with caution."

The artificial mineral waters of the shops belong to this class. The best example of a natural spring of carbonated water is the Sweet Springs in Monroe county, Virginia. Between this spring and the Bristol *hot* well, as it is erroneously called, of England, there is a very great similarity; the temperature of both is 73° of Fahrenheit; in the former, however, there is discovered a slight trace of iron, of which the latter is entirely free. The diseases in which the water of the Sweet Springs is found beneficial, either taken internally, or used as a bath, are examined in detail by our author; into a notice of these our limits will not permit us to enter.

The two most celebrated thermal acidulous springs in France are those of Mont D'Or and of Vichi. "The former were known to the Romans, who erected several buildings on the spot, the remains of which are still visible." The waters of both these springs may be imitated by art, the proper formulæ for which are given by Dr Bell.

Of the cold acidulous mineral waters, those of Seltz in Germany are the most noted. "These waters are an article of commerce in the cities along the Rhine, and are in common use at table, either alone or, what the *bon vivant* prefers, mixed with the lighter wines." Directions are given for their artificial production.

Chalybeate waters are the subject of the fifth chapter. These waters, as their name implies, owe their characteristic properties, chemical and medicinal, to their containing oxide of iron, which is almost uniformly held dissolved by carbonic acid; the acid being usually in excess. Their effects are modified by the quantity of carbonic acid in excess, and of saline ingredients.

The individuals by whom the chalybeate waters are resorted to with the greatest benefit, are those exhausted by disease, and whose chief complaint is languor, with cool skin, and a pale and moist tongue. They are useful, likewise, in restoring the digestive function, when its inactivity is not dependent upon irritation of the stomach, or of the liver.

"They will be found useful," Dr Bell remarks, "in the sequelæ of hemorrhages and mucous discharges, provided the evacuation has been such as to cause general debility, and does not leave behind it a point of irritation, to which general excitement causes a speedy afflux of fluids, with augmented sensibility. This remark applies to hemoptysis, and menorrhagia, fluor albus, diarrhœa, chronic catarrh of the bladder, and old gonorrhœa; also protracted autumnal intermittents and associated dropsical effusions. In the second stage of scrofula, chalybeates have been used with benefit. For the cure of amenorrhœa and the removal of sterility, they have been always celebrated."

The most celebrated of the thermal chalybeate springs are those of Bourbon L'Archambault, in the department of the Allier, in France. They were known and highly prized by the Romans. Of the cold chalybeate springs the most noted in Europe are the Spa, in the kingdom of Belgium; Pyrmont, in Westphalia; Forges, twenty-five leagues from Paris; Passy, near that capital; Tunbridge and Brighton, in England. In the United States there are a great number of chalybeate springs; the principal of which are those of Ballston and Albany, in the state of New York; Hopkinton, in Massachusetts; Bedford, Pittsburgh, and Frankfort, in Pennsylvania. Virginia, Kentucky, Tennessee and Ohio, can also boast of waters of the same class. Most of the above springs are minutely described by Dr Bell, and an account given of their chemical properties and medicinal virtues. Formulæ are, also, furnished for the artificial imitation of the various chalybeate waters.

Saline mineral waters are the subject of the next chapter (Chapter VI.). "Under the class of saline mineral waters are comprised those in which there are neutral salts enough to produce a marked and generally purgative operation. The salts most usually present are the sulphates, muriates and carbonates—such as the sulphates of magnesia and soda, muriates and carbonates of soda and lime. The proportion of aërial matter is seldom large."

These waters have no direct effect upon the sanguiferous and nervous systems. Their efficacy in disease depends chiefly on their stimulating the entire gastro-intestinal mucous surface, as well as the pancreas and liver, to a free secretion of their respective fluids. Being, likewise, absorbed and carried into the mass of the circulating fluids, they in this manner act on the entire capillary tissue and the various secretory organs of the body. They produce less irritation of the stomach and bowels than our ordinary purgatives, while their cathartic effect is greater than could be anticipated from the amount of their saline impregnation. Administered in cases in which there exists no marked irritation nor phlogosis of the mucous membrane of the stomach and bowels, they have been found beneficial in relieving congestions and irritations of the more remote organs, as well by the evacuation of fluids, as by the derivation of blood from them to the superficies of the vena portæ. "Affections of the head, chest, skin, and joints, will all be severally benefited by the judicious use of the waters in question." Under their use, there takes place, also, an increased secretion from the kidneys and skin. This effect more usually follows, however, smaller quantities of the waters than are drunk to produce purging. It is in consequence of their gently promoting the functions of the skin, especially if moderate exercise and the occasional use of the warm bath be adopted in conjunction with their ingestion, that we may explain the beneficial effects of the saline mineral waters on the mucous surface of the lungs, and on the serous, synovial, and fibrous membranes—as in chronic catarrh and asthma, rheumatic affections of the joints and limbs, &c. In consequence of the little irritation they produce in the gastro-intestinal mucous surface, they do not impede, but rather augment the powers of digestion.

Of the thermal saline springs the most celebrated are those of Plombieres, Bourbonne-Les-Bains, Balaruc, Bagnéres-Adour, Bourbon-Lancy, in France; of Carlsbad and Tõeplitz, in Germany; of Lucca, San Julian, and Monte Catini, in Italy; in the United States we have the Hot Springs of Virginia and the Warm Springs of North Carolina. The most noted of the cold saline springs are the Cheltenham and Epsom in England, and Seidlitz and Seydchutz in Bohemia. The Pyrmont waters sometimes classed under this head are noticed by Dr Bell under the head of chalybeates, to which they strictly belong. A tolerably full sketch of the peculiarities of each of these mineral waters is given, with their chemical composition and medicinal powers, and the rules to be observed in their use.

"Of the saline mineral springs of the United States, those of Saratoga," remarks our author, "are by far the most celebrated. The composition of these waters is such, that they might, if we merely had regard to the abundance of carbonic acid which they contain, be placed with the acidulous class; or, were we influenced by the fact of their holding iron in solution, we should consider them as chalybeates. In placing them under the saline head, I have been more influenced by the fact of their free action on the bowels, than by the nature of the saline ingredients, in none of which, however, do we recognize a regular purging salt, such as the sulphate of soda, found in the Cheltenham waters, or the sulphate of magnesia, found in those of Seidlitz, or in smaller quantities in those of Harrowgate, or of Harrodsburgh, Kentucky, or of the White Sulphur Springs, Virginia."

Want of space prevents us from noticing the very full account given by Dr Bell of the saline mineral springs of this country, and from the same cause we must pass over what he says on the subject of sea water, and its efficacy when used internally as a medicine.

The seventh and concluding chapter is devoted to the subject of the simple thermal waters. The efficacy of these, when taken externally or used as a bath, Dr Bell attributes mainly to temperature, aided, in the former case, by dilution.

"The series of phenomena," he remarks, "produced by the application of external, are repeated on the application of internal warmth, but with an augmentation of energy and diffusiveness, in proportion as the influence of the stomach over the brain and heart is more immediate and direct than the sympathy between these organs and the skin. If to the effects of nervous excitement caused by warm water acting on the sentient surface of the stomach, be added those of vascular fullness, caused by the absorption of a large quantity of simple fluid, we can easily understand how drinking thermal waters should be attended with such marked benefit in numerous chronic maladies."

After enumerating the principal affections in which the internal use of simple thermal waters, and regular bathing by immersion in the same, are found beneficial, the author refers to the reputed efficacy of the Malvern waters in various diseases, while in fact they contain not more than three or four grains of foreign or solid matter to the gallon. The good effects of these waters, therefore, as well as those of Buxton, Bristol, and Bath, in England, and of Lebanon, the Warm and Hot Springs in Virginia, are mainly explicable, as has been already remarked, on the principle of dilution and temperature. Not a little, however, and perhaps the chief benefit derived in the visits of the invalid to the above springs, has been by using the waters as a bath. The chapter contains a brief notice of the Warm and Hot Springs of Virginia, and of the great inducements to visit them, arising from their number, the variety of their mineral impregnations, and the natural beauties presented by the upper and middle section of the state; and concludes by alluding to the advantages of travel to the invalid as a preparative for the use of the waters of the springs, while on occasions it will aid in completing a cure happily commenced by bathing in, and drinking of, the latter.

In our notice of the work of Dr Bell, we have confined ourselves almost entirely to an analysis of its contents, believing that in this manner we can best introduce our readers to a knowledge of the subjects which it embraces, and of the author's method of treating them. The connexion of Dr Bell with the editorial department of this Journal, has prevented us from indulging, in the course of the review, in eulogistic commentary, but, in concluding, we must be permitted to say, after a very minute, cautious, and unbiassed examination of the work, that it contains, in a condensed form, all the leading points of information, so far as they could be obtained, which are required by the physician, relative to the important subjects of which it treats.

ART. XIII.—THACKRAH ON THE EFFECTS OF ARTS, TRADES, &c. ON HEALTH AND LONGEVITY.

The Effects of the Principal Arts, Trades, and Professions, and of Civic States and Habits of Living, on Health and Longevity, with a particular reference to the Trades and Manufactures of Leeds; and Suggestions for the removal of many of the Agents which produce disease and shorten the duration of life. By C. TURNER THACKRAH. *From the London Edition with Improvements, pp.* 180, 18*mo. Philadelphia,* 1831. *Literary Rooms, No.* 121 *Chesnut Street. Office of the Journal of Health and Family Library of Health, &c. Henry H. Porter, Proprietor.*

The subject of the influence of the different arts upon health, is at this time of peculiar interest to the people of the United States. In almost all parts of the country, manufactures of various kinds are springing up and extending themselves with unparalleled rapidity; but being yet in their infancy, they are not marked by that inveteracy of abuse, which characterizes the great establishments of England, and some other European countries. There, in the vast competition both of labour and capital, every other consideration than that of cheapness of production has been overlooked. As no counteracting principle existed in the intelligence of the lower orders, the workmen have come to be regarded as machines; and the question of their health and comfort, resolves itself into a mere calculation of profit and loss. To obtain as great an amount of labour at as little cost as possible, is the sole object of the manufacturer; and [illegible] fatal influence of long confinement, unhealthy exposure, and meagre diet, is of little consequenee, so long as a superabundant population affords the ready means of supplying vacancies. But the practical operation of this system has been to collect together great masses of unhealthy, ignorant, corrupt, and miserable people, who, though in times of great commercial prosperity they may be content to drag on their toilsome existence without loud complaints, become under opposite circumstances, a source of great and constant anxiety, often break forth into open outrage, and, at all times, afford to designing men a powerful instrument of political commotion. Though the benevolent manufacturer mourns for this degradation of the lower classes, and joins with those who are more selfish, in dreading its future consequences, both to individuals and the community, yet the evil appears so inveterate as almost to discourage any attempt at relief; and the present state of things will probably continue, with little amelioration, till, by some terrible convulsion, society shall be resolved into its elements, and an opportunity be thus afforded for a new, and more just, as well as politic arrangement. For the people of the United States it is highly important to take warning by the example, and before it is too late, to interpose checks to the natural influence of unrestrained competition in manufactures upon the character and condition of the working classes. So far as concerns their morals and education, the subject has no especial relation to the medical profession. On these points, we are individually bound to feel and to act only as members of the community at large, and we leave their discussion to works of a more general character. But whatever relates to the health of the labourer, comes peculiarly within our province; and it is our professional duty to do as much as lies in our power, not only to impress upon the manufacturing public the great importance of attention to the physical condition of the workmen, but also to investigate and make known the favourable or unfavourable influence, exerted by particular pursuits, upon this condition. Manufacturers will thus be enabled to remove, modify, or counteract those causes, which, in the several branches of their business, operate deleteriously upon the health; and when the processes of any particular art are irremediably noxious, its products may continue to be derived from abroad, and its introduction into the country be thus postponed or altogether avoided. Even where evils already exist, they have seldom taken so deep a root that they may not be eradicated by the combined efforts of the master and workman, when properly enlightened in relation to them.

From the above considerations we are much pleased with the republication, in our country, of the work, the title of which is at the head of this review. The very causes which render such a work peculiarly desirable here, at the same time render its composition impracticable. It describes evils, the particulars of most of which we cannot personally investigate, because they exist in but a very small degree among us, but with which it is highly important that we should be acquainted, in order to prevent their introduction. We must, therefore, resort to foreign sources for information; and the little book before us is peculiarly valuable, as its contents are the result of personal observation and research on the part of the author. The town of Leeds, to which the inquiries of Mr Thackrah were chiefly confined, is one of the largest manufacturing cities of England; and in the great variety of arts practised in it, affords, perhaps, as good an opportunity as any other place, for investigating the influence of such pursuits upon the human system. The author appears to have taken much pains, by personal inquiries and examination, to acquire correct information; and though we cannot admit without hesitation the accuracy of all his inferences, it gives us pleasure to state, that he has accumulated a mass of facts which render his work of great practical value. We do not intend to lay before our readers all these facts, nor even all among them which might be considered most important; for, independently of the injury we might do to the publishers, whose zeal in circulating useful knowledge deserves better at our hands, we should not find space without encroaching too largely upon that allotted to other subjects. If by noticing the general plan and some of the most prominent details of the work, we shall convey to our readers such an impression of its value as to induce them to peruse it attentively for themselves, and to promote the general circulation of the knowledge which it contains, we shall gain the end we propose, of contributing to the public welfare.

The author divides the inhabitants of Leeds into four great classes; 1. Operatives; 2. Dealers; 3. Master-manufacturers and merchants; and 4. Professional men. Each of these classes, and the sub-classes respectively included in them, he considers severally in relation to "the atmosphere they breathe, the muscular exercise they take, the postures of body they maintain, the varieties of temperature and humidity to which they are exposed, their diet and habits of life, and finally, in some classes, the state of mind." By this arrangement he follows in the steps of his own investigations, and presents us with more lively and impressive pictures than if, after having acquired his materials, he had thrown them into a more compact and artificial form; if, in other words, instead of pursuing men through all their avocations, and marking the effects of these avocations upon their health, he had taken up the subject of the several agents injurious and beneficial, and treated of their general influence. By the latter plan he might have avoided numerous repetitions, but would have made a less interesting and impressive, and therefore less useful work. In order, however, to present the subject in its various points of view, he gives us, by way of summary, towards the end of the volume, a brief account of the operation of the real and supposed noxious agents separately considered; and having followed this by a few observations on the means of preserving health, closes the work by offering "hints for the choice of employments and situations calculated for the respective constitutions of young people."

Of the labouring classes, the author first treats of those *whose habits are active, and whose employments are chiefly in the open air.* Most of these he finds to be healthy unless addicted to intemperance or badly fed. Exposure to changes of weather appears to have little injurious influence. The *butchers* are usually "plump and rosy," and notwithstanding the presumption of the English law, and the pretensions of certain theorists, are "generally cheerful and good-natured." Living well, and generally prosperous, they are subject to few ailments. The effluvia of the slaughter house, though often offensive, are not apparently hurtful, and are often decidedly useful. "Consumption is remarkably rare among the men employed in the slaughter-house." They are also less subject than others to the influence of epidemics, in consequence, as the author supposes, of the atmosphere which they breathe resisting the changes which give rise to these diseases. But notwithstanding their general healthfulness, butchers are not longer lived than persons engaged in most other employments. Their excessive use of animal food induces a state of plethora which is unfavourable to the attainment of great age.

The next division of the labouring classes is that in which *the employments are carried on in an atmosphere confined and impure.* The author first speaks of the general influence of the air of manufacturing towns.

"The excess of carbonic acid gas," he observes, "is said to be very trifling; but our skins and linen prove an abundant admixture of charcoal itself. Ammoniacal and other vapours from manufactures, sewers and places of refuse add to the general impurity. This state of atmosphere affects in a greater or less degree all the inhabitants. The complexion is pallid; and the tongue shows that digestion is disordered and imperfect. I should think that not ten per cent of the inhabitants of towns like Leeds enjoy full health. Were we to ask, indeed, those we see around us, the major part would say they are quite well. But a close examination would prove that there are few individuals who have not either disease of some organ, or an evident disposition to disease. The lungs, however, suffer much less from the air of towns than we should expect. Bronchial affections, indeed, are common; but other acute diseases of the chest, as pleurisy and inflammation of the lungs, are, I think, neither so frequent nor so severe as in the agricultural districts. Cases of consumption also are not comparatively numerous; nor in their progress so rapid in smoky towns as in the purer air of the country and the mountains. I speak of the general atmosphere of towns; for we shall hereafter see that the atmosphere of certain manufactories excites consumption to a very lamentable extent.

"Though all the inhabitants of large towns suffer in a greater or less degree from the impurity of the atmosphere, yet it is obvious that those who are most crowded together will be chiefly affected, particularly if ventilation be imperfect. A serious addition to the evils of a confined atmosphere is the defect of muscular exercise. Certain classes of muscles are for twelve or fourteen hours a day scarcely moved, and postures maintained injurious to the proper actions of the internal organs."

We shall state cursorily a few of the facts which Mr Thackrah has collected in relation to the operatives which he places in this division. *Tailors*, though not very liable to acute diseases, are exceedingly subject to obstinate disorders of the stomach and bowels, and are frequently attacked with pulmonary consumption. Few live to old age. Of twenty-two workmen employed in Leeds not one was sixty years old, two had passed fifty, and of the remainder only two had reached forty. The position of tailors when working is peculiarly injurious by restraining the free movement and natural action of the thoracic and abdominal viscera. This position is said to be requisite in order that the cloth may be brought sufficiently near the eye. The author proposes that a hole be made in the board on which the workman usually sits of a size equal to the circumference of his body, and that his seat be placed beneath it.

Among *weavers* fever is rather frequent, but other acute diseases are rare. The men, however, seldom enjoy health, being subject to dyspepsia, as well as to asthma and other affections of the chest. Yet, according to Mr Thackrah, "there are more old men in the occupation of weaving than in most others." This fact is in accordance with an observation which has been frequently made, that life is not necessarily shortened by causes which prevent robust and vigorous health. If the powers of the constitution resist the primary morbid actions for a certain period, so as to prevent great organic derangement, the system accustoms itself to its altered condition, which becomes, in fact, a new nature; and life goes on to its full period, though with a less amount of comfort, or at least of enjoyment. The morbid cause, under these circumstances, becomes an agent essential to the new health, if we may so express ourselves, of the individual; and disease frequently results from its sudden withdrawal. We have been told that old persons long accustomed to the air of miasmatic countries speedily droop and die if conveyed into what is to others a healthier atmosphere; and few physicians would deny to an aged man affected with gout the continued use of wine, to which he had been all his life accustomed, even though it may have been the cause of the complaint under which he labours.

Milliners and dressmakers, *shoemakers*, *watchmakers*, and numerous other sedentary classes suffer in like manner with those already mentioned. The occupations of *curriers* and *cabinetmakers* are stated to be conducive to health, and a considerable proportion of those engaged in dressing leather live to old age. *Smiths* were not found to labour under diseases which could be attributed to their occupation, but, in consequence of intemperate habits, seldom enjoy long life. The author "could hear of but one old smith in the town of Leeds."

The third class of employments includes *those which produce dust, odour, or gaseous exhalations*. These are not all apparently noxious, and some are even thought to be wholesome. The author, somewhat theoretically, considers "that any addition to the natural atmosphere must be absolutely noxious in a greater or less degree;" and health would immediately suffer were not the injurious impression counteracted "by that conservative power of the animal constitution which accommodates functions to circumstances and situations." But though obvious injury is often prevented by this vital power, the author conceives that it is always at the expense of the power itself. He believes that the human system is gifted with a certain amount of vitality, which would naturally carry us to old age, that this principle is expended to a greater or less degree in maintaining health against noxious impressions, and that in proportion to this expenditure will be the diminution of the natural period of life. His opinion, however, is entirely fanciful, and wants the support of both argument and fact. So long as the system remains in a healthy state, we have no evidence of any expenditure of vitality; and it is well known that the body may become habituated to the causes of disease, and old age attained under circumstances in which, according to Mr Thackrah, the vital power should be rapidly exhausted from the constant necessity for its exertion. In stating the fact, that certain effluvia are beneficial to health, he acknowledges an apparent contradiction to the opinion previously advanced, but attempts to prove a real accordance between the two statements by observing that these effluvia act beneficially by a remedial influence. "To man," he states, "in a perfectly healthy condition, no substance arising from manufacture can be useful; but men living in a large town, and with the habits of civil life, are generally unhealthy; and hence certain vapours or other substances may be decidedly beneficial in exciting their languid powers, or correcting the disposition to disease." It is undoubtedly true, that nothing can improve perfect health: but we can readily conceive, that impressions not in themselves in any way injurious may be produced by certain agents on a healthy system, which may serve to protect that system against the influence of morbid causes.

Among the occupations in which the exhalations are apparently beneficial, may be mentioned those of the *glue* and *size boilers, buckram manufacturers, tallow chandlers, and tanners.* Notwithstanding the highly offensive odours to which persons engaged in these employments are exposed, they are in general remarkably healthy. Of seven men employed in one buckram manufactory, one is 51, another 58, a third 68, and a fourth 76; and all have been engaged in the business from early youth. Tanners are exposed to the effluvia from putrifying skins and vapour loaded with lime, and with the volatile principles of tan. They are unusually robust, with a florid countenance; and disease is almost unknown among them. They are said to be peculiarly exempt from consumption. "We have carefully inquired," says the author, "at several tanyards, and could not hear of a single example of this formidable disease."

But though the effluvia in manufactures are sometimes innoxious, and in a few instances even beneficial, they are generally more or less injurious, and are often capable of producing fatal effects. In relation to *millers*, who are constantly inhaling the fine particles of flour, the author states that they are generally pale and sickly, with defective appetite, impaired digestion, and often have more or less pectoral disorder. Though he found several who had borne the employ from boyhood to the age of fifty or sixty, the individuals were by no means robust; and he could not find an instance of an aged or healthy miller. *Coffee roasters* "complain of oppression at the chest, difficulty of breathing, and cough, of headach and indigestion." Though the mere odour of tobacco is not injurious, *snuff makers*, who inhale the powdered narcotic mixed with muriate of ammonia and other substances, are affected with disorders of the head, bronchia, and stomach. Of all the occupations attended with much dust, the *manufacture of flax* appears to be most injurious, especially in the departments of carding and heckling. The persons employed "are subject to indigestion, morning vomiting, chronic inflammation of the bronchial membrane, inflammation of the lungs, and pulmonary consumption." Six individuals taken at random from those who had been employed for a long time, were found, upon examination with the stethoscope, to have the lungs or air-tube considerably diseased. A large proportion of men employed in heckling flax die young. Very few can bear it for 30 years, and the author could not find a single individual who "had been 40 years either in this or any of the dusty rooms." At one of the largest flax mills in the neighbourhood of Leeds, out of 1079 persons employed, only 9 had obtained the age of 50, and besides these only 22 were 40 years old. Young persons are observed to bear the occupation better than those of full age. It is a common practice to employ young children in the most injurious branch of the business, and to dismiss them from the mill, or transfer them to other departments, at the early age of 13 or 14. But there can be no doubt that unfavourable impressions are produced on the health, even at this early period, which if not obvious at first, display themselves in after life. What chance have children of attaining a healthy old age, when treated as represented in the following picture?

"No man of humanity can reflect without distress on the state of thousands of children, many from six to seven years of age, roused from their beds at an early hour, hurried to the mills, and kept there with an interval of only forty minutes, till a late hour at night; kept moreover in an atmosphere impure, not only as the air of a town, not only as defective in ventilation, but as loaded also with noxious dust. Health! cleanliness! mental improvement! How are they regarded? Recreation is out of the question. There is scarcely time for meals. The very period of sleep, so necessary for the young, is too often abridged. Nay, children are sometimes worked even in the night."

Cabinet makers and *turners of wood* suffer from the dust only when there is something peculiar in the property of the wood. The dust of African cam, rosewood, and Spanish mahogany, are particularly mentioned as injurious. Sneezing, headach, sickness, and sometimes vomiting, are produced by the first; the others "occasion indigestion, and sometimes diarrhœa." The spicula thrown off by stones and metals are often highly noxious. The effects of the former are seen in *miners* who work in sand stone, when there is not moisture enough to lay the dust: when the ore is in limestone the workmen suffer little inconvenience, because the fissures existing in this rock always admit water into the mine. *Grinders* suffer much from a similar cause. "Dr Knight states that the fork-grinders, who use a *dry* grindstone, die at the ages of 28 or 32, while the table-knife grinders, who work on *wet* stones, survive to between 40 and 50." The prevalent maladies resulting from this cause are affections of the lungs and bowels. Much depends on the size and figure of the particles which are inhaled. While the dust from the roads, and that which rises from old rusty iron produce little injury, the masons' chippings, and the particles detached from iron by the file, are highly noxious. In the latter cases, the angular or pointed figure of the spicula, is probably the chief cause of injury. "*Filers* are almost all unhealthy men, and remarkably short-lived." Only one instance could be found in the neighbourhood of Leeds in which an individual had followed this business for 20 years; and at two of the principal machine manufactories of that city, there are only two filers at the age of 48, neither of whom pursued the labour uninterruptedly from boyhood. The working of wrought iron was found to be much less injurious than that of cast-iron. The *turners, filers, and dressers of brass*, do not seem to be more unhealthy than the generality of the townsmen.

Brass founders, braziers, and coppersmiths, suffer considerably from the inhalation of metallic vapours. "The men suffer from difficulty of breathing, cough, pain at the stomach, and sometimes morning vomiting." Mr Thackrah did not find one brass founder more than 40 years of age, though informed that there were two in the neighbourhood of the ages of 60 and 70, who had been engaged in the business from early life. The effects of the fumes of lead are too well known to require particular notice. The vapours and gases evolved in chemical laboratories are stated to exercise an injurious influence on health. "Few old men are found in laboratories."

The fourth class of occupations are those which *injure or annoy by acting on the skin*. *Potters* are affected with obstinate constipation and frequent attacks of colic, resulting from the use of lead in glazing; "and if kept in this department they at length become paralytic." The effect is attributed to the immersion of their hands in liquid containing the preparation of lead; and it is said that much good has resulted from enforcing among the workmen a regulation, that they should thoroughly clean their hands before going to meals.

The frequent handling of sugar is said to produce among *grocers* a cutaneous eruption of the character of impetigo, or eczema; and *bricklayers* experience a similar effect from lime. *Bakers* are affected with a scaly eruption, a variety of psoriasis, arising from the irritation of the flour. The cancer scroti of *chimney sweepers* is well known.

The action of oil upon the skin is thought by the author to be beneficial; and to this cause in part he attributes the greater healthfulness of the woollen manufacture. "The men, the young women and children in this employ, are more robust than other artizans; and when the dye and dirt are removed from the skin, have really the complexion of health. Individuals, too, who have been injured by the dust of other kinds of manufacture, and hence have been obliged to leave such employ, became hale and vigorous on their removal to the woollen." But this effect is chiefly ascribable to the circumstance that the oil of the wool prevents the formation of dust.

The fifth class of the operatives are those exposed to *wet* and *steam*,—"water about the temperature of the atmosphere, and water vaporized by heat." The author is disposed to ascribe much less agency in the production of disease to moisture, with changes of temperature, than is generally admitted both by medical men and those not belonging to the profession.

"A reference," he observes, "to the situation and employment of several classes of society decidedly shows that wet and cold, without other agencies, do not produce the disorders ascribed to them. Look at the brickmaker, who is subject neither to rheumatism nor catarrh, though his bare legs are immersed all day in a puddle; at the dyer, on a wet floor, and subject to great atmospheric changes both of humidity and temperature almost every moment; at the bricklayer, who is exposed to every vicissitude of weather, and is generally careless of protection; at the paper-maker, one hour perspiring at the strong labour of the press, in an atmosphere of warm vapour, the next standing in the same dress, in a room open on both sides to the wind, and merely putting up sheets of paper to dry; at the wool-scourer, the miller of cloth, and men in similar employments. Individuals, indeed, in these departments sometimes complain of pains, which they call rheumatic. But such complaints we find in all occupations and classes of men. The nature of these pains is obscure. They appear to be affections of the muscles. True rheumatic inflammation of joints is not frequent in any of the employments I have mentioned. Though we find instances, these are not more numerous than among corn-millers, and less than among croppers. Of other acute diseases ascribed to cold, as inflammation of the lungs, pleurisy, &c. the men generally appear quite ignorant. I am far, however, from maintaining that vapour, wet and cold, never produce disorder. In certain circumstances, and when long continued, they certainly do. The reaction that ensues advances to fever and inflammation. But cases of this kind are rare. I contend that in the daily instances of common life, cold is not the great cause of disease; and even in those which are considered as exhibiting indisputable evidence of its effects, a morbid predisposition has generally been formed by the person's habit of life, as influencing the state of the circulation and secretions."

The author concludes his remarks on this subject by the following propositions; "1. That 'wet and cold,' as they occur in ordinary life, are rarely adequate to the production of disease; and 2. That in the few cases in which they have such agency, they are only the *exciting* causes of disease."

We do not think Mr Thackrah very happy either in the opinion which he has adopted, or the arguments he has adduced in support of it. Much more than he has advanced will be requisite to overthrow a conviction so deeply rooted in the experience of mankind in all ages, that vicissitudes of heat and cold, moisture and dryness, are among the most common causes of disease. That persons constantly exposed to these vicissitudes are less liable to their injurious influence than others, is a fact in accordance with a well known law of the system, and affords no support whatever to the opinion of the author. The constitution becomes habituated to this as it does to other noxious agencies; and an individual who lives through the first periods of exposure, will after a while cease to feel inconvenience. It is a fallacy to suppose that persons under ordinary circumstances take cold in consequence of any morbid predisposition: they feel the effects of atmospheric change, because they have not hardened themselves against it; and the liability to be affected is entirely compatible with a state of perfect health. The opinion of Mr Thackrah, if generally adopted, would, we conceive, be productive of much evil, by causing a neglect of those ordinary precautions, which the existing state of society renders necessary, in order to avoid danger from vicissitudes of heat and cold.

The effect of steam, without frequent and considerable changes of temperature, is to produce disease in the alimentary canal. The *brushers of cloths by steam* who are immersed all day in dense vapour, often suffer distress in breathing; but are more permanently affected with disorder of the bowels, generally attended with impaired appetite, and not unfrequently with vomiting. They have a very sickly appearance, but do not suffer more than others from rheumatism, catarrh, or pneumonia.

The last class of operatives which the author examines, consists of men who are exposed to *a high temperature, or to great variations of temperature.* Among these are "*bakers, cooks, persons in the dryhouses of cloth, glossers, stuff-pressers, cotton and silk spinners, glass-workers,* and *iron-founders.* They are not apt to be affected with acute disease, but are often pale and thin, with feeble appetite and disordered digestion, and do not generally attain old age. It too often happens, that habits of intemperance add to the injurious influence of heat. The *glass-workers* appear to suffer less than most of the others. When temperate, they are usually in good health, and attain considerable age. Cases are stated of individuals remaining at the employ till the age of 70 and 80."

Having completed a view of the several classes embraced by the title of *operatives*, the author proceeds to fill up his plan, by a rapid sketch of the three remaining orders into which he distributes the inhabitants of the city. But as this part of the work contains few facts which are not familiar to most professional men, we shall pass it over without particular notice, observing, however, that individuals belonging to the different trades and professions, will find in it hints relative to the best modes of preserving their health, which will amply repay them for the time and trouble of an attentive perusal.

Nor shall we be able to follow the author in his recapitulatory classification of the agents of disease. The following quotation presents the general result of the influence of these agents.

"In examining factories we have frequently asked, 'Where are the old men?' In fact our principal employments contain but a small proportion of the aged,—no such proportion as we find in the pursuit of husbandry. In the employments, moreover, which do present a considerable number of old workmen,—weaving, for instance,—these individuals are by no means robust. They are vastly inferior in strength or appearance to old peasants. Though life may be protracted, it is not full life. On the whole, our inquiries show that some artizans are cut off by severe maladies; but that the majority have their constitutions so impaired by premature labour, by subsequent excess of labour, or by intemperance, that they fall under comparatively slight attacks of disease, attacks which the constitution of countrymen would resist. And of those who survive to advanced life, the majority are so enfeebled as to be unfit for the labour to which they have been accustomed, and are obliged in consequence to seek a scanty livelihood in easier employments. Finally, not a few who have been improvident, are found in the work-house, prematurely aged."

It must be recollected that these and all other observations of the author have relation to a state of things which by no means exists to its full extent in this country; and are chiefly valuable as they may contribute towards preserving us from the evils which it is partly the object of the work before us to represent. In relation to the comparative healthfulness of cities and the country in the United States, we are convinced that the former will not, as a general rule, yield to the latter, unless it may be in the cases of infants during the summer season. Our streets are in general sufficiently wide to admit of free ventilation, and are usually kept clean. The poorest classes have an abundance of wholesome fare, and instead of being crowded together in great numbers in the same house, are distributed for the most part in separate habitations, accommodated to the circumstances of families. Manufactures, though carried on to considerable extent, are distributed in small establishments, in which the workmen are not inconveniently crowded; and the largest factories are usually in the country, where they have been placed for the convenience of water power. Exceptions may of course be found; but the above statement is generally correct; and our ardent wish is, that we may always be able to congratulate our country on its exemption from evils, of which we receive such melancholy accounts from the older and more populous countries beyond the Atlantic.

Art. XIV.—MANUAL OF MATERIA MEDICA AND PHARMACY.

A Manual of Materia Medica and Pharmacy, comprising a concise description of the articles used in Medicine; with observations on the proper mode of combining and administering them; also, the Formulæ for the Officinal Preparations of the London, Edinburgh, Dublin, Parisian, American, and most of the continental Pharmacopœiæ: together with a table of the principal medicinal plants. From the French of H. M. Edwards, M.D., *and* P. Vavasseur, M.D. *Corrected and adapted to British practice by* John Davies, M.R.C.S., *Surgeon of the Herts Militia, late editor of the London Medical and Surgical Journal, &c. London.* 1831. pp. 490. *8vo.*

Had we not been taught the reverse by experience, we should hardly have supposed, that in the nineteenth century, when, from the prevailing [illegible] [illegible] professional knowledge, and the general diffusion of an acquaintance with the principal living languages, the productions of the press make, in a few months, the round of the civilized world, individuals should have the hardihood (to use no harsher expression) to affix their names to the title page of a work as translators or commentators, or to claim as a production of their pens, contributions for which they are indebted to others, and should after all appear insensible to the danger of detection.

Wonderful and unexpected as this practice of plagiarism may appear, it has, however been pursued on innumerable occasions in our own days; and we believe that without disparagement to the merits of our English brethren—merits which we are ever willing to admit—the charge of having been guilty of such unhandsome depredations on the productions of others can be oftener brought home on the professional writers, or rather professional scribblers, of their country, than on those of any other.

We have not as much space and time as would be required to enforce this assertion by numerous examples, and must, therefore, content ourselves with alluding to a few facts which occur to our minds while writing these lines. To a notice of the thefts of an individual who at present edits an *olla podrada* called the London Medical and Surgical Journal, and who usually fills a portion of his numbers with long extracts (which he tastefully denominates *entremets*) from our Journal, the whole without acknowledgment, we need not recur in this place, as they have been exposed in a former number. But other cases in point, which are, perhaps, not so well known to our readers, may be mentioned. In one of the numbers of a medical journal, edited some years ago, in London, by Mr Anderson, we found three or four articles taken from one single number of our publication, the whole *verbatim et literatim*, and without a word of acknowledgment. Among these articles we may particularize a review of Derheim on Leeches, and a biographical notice of the late professor Béclard. We recollect, also, comparing, some years ago, a review of Tiedemann on the Brain, contained in a number of the London Medical and Physical Journal, with another of the same work which appeared some years before in the *Journal Universel des Sciences Médicales.* The identity of the two was fully established, though the plagiarist had made some trifling alterations in order to give to his article an English dress. Nor have the more respectable portion of English professional writers escaped the contagion of plagiarism. Mr Grainger, the author of a late work on general anatomy, has made rather more free with Béclard than he acknowledges—copying whole paragraphs from the French writer, and deriving a great portion of the substance of the rest of his work from the same source.

It is but an act of justice, however, to British physicians to state, that while writers among them are, oftener than others, guilty of the peccadillos to which we refer, we do not mean to affirm that they alone are chargeable with them, and that continental or even American physicians themselves have not acted on the principle advocated by the French satirist, that *tout ce qui est bon m'appartient.* We could refer to more than one strange *coincidence* of the kind in French and, we blush to own it, in American medical literary productions. But by so doing we should only swell this article beyond its proper dimensions, and draw down upon ourselves the ill will of many an author of dispensatories, treatises, pamphlets, and introductory lectures.

Flagrant as the guilt of the writers to whom we *have* referred, as well as that of those to whom we *could* refer, may appear on close inspection, they, in some measure, sink into insignificance when compared with an example of literary piracy to which we now beg leave to call the attention of our readers.

It may, perhaps, be remembered, that in the ninth volume of this Journal we gave a critical notice of an American translation of MM.

Edwards and Vavasseur's Manual of Materia Medica, with numerous valuable additions by our estimable townsmen, Dr Togno and Mr Durand. Now, this translation and its additions appear to have found their way into the hands of Mr John Davies, M.R.C.S., Surgeon of the Herts Militia, &c., and to have been considered as fit prey by that gentleman. Such, at least, we are led to infer from a comparison of the American publication with that whose title we have prefixed to this article.

The trifling charges which we are induced, after this comparison, to make against Mr Davies, are the following:

1. That Mr Davies is not the author of the translation in question.
2. That, in omitting the names of the American editors, he unjustifiably endeavours to represent as his own, the additions they have made to the work.
3. That he pretends, without sufficient foundation, to have corrected the work of Edwards and Vavasseur.
4. That so far from incorporating "*new matter*" of any value, in addition to that which the American editors had introduced, Mr D. has neglected to add to his edition a notice of many interesting substances which have been discovered since the publication of the work in this country, and which those gentlemen would not have failed to introduce, had they been called upon to prepare a second edition.

Should the remarks of American journalists on this act of dishonest plagiarism never circulate in England; should he not be detected and exposed by some of his own countrymen, we shall be disposed to consider Mr D. as a very lucky man, in finding works already translated, researches already made, to which he can affix his name, and which will enable him to receive credit for his industry. We are fully persuaded that Mr Davies calculated on the disposition of the few of his countrymen who will be able to detect his imposition, to keep his secret for the honour of their country; and supposed that the ignorant people of America would never find him out, or have the hardihood to affront him or his friends by the discovery. We hope, however, that he will be as disappointed in the former supposition, as we know he will be in the latter. Some honest reviewer will, we have little doubt, be found in the three kingdoms, who will chastise him for his impudence; and we beg him, and those of his genus, to rest assured, that the physicians of this country read more, and exercise their minds more, than some give them credit for; and that neither we ourselves nor our contemporaries here, will ever shrink from the task of defending the rights of our countrymen, against the depredations of all the editors of the London Medical and Surgical Journal—*past*, *present*, and future.

We have said that it was evident Mr D. wished to pass the translation before us as his own, and to lay claims to the additions to the original work which it contains. To this conclusion we believe every one will arrive, from a perusal of the title page and preface, in which the names of Dr Togno and Mr Durand are not contained, and in which he states that he has added "some new matter," and adapted it to British practice. It would be a poor argument against this charge to say, that as Mr D. does not state in positive terms that he *is* the translator, therefore he did not wish to be considered in that light. Had this not been his intention, we see no reason for omitting the names of the real translators, who might not be known to the English reader, unless they were introduced to his acquaintance by Mr Davies.

It would be a useless employment of our time to undertake to prove by quotations and comparisons, that Mr D. has not a shadow of claim to the translation before us. It will be sufficient to affirm the fact, and refer those of our readers who feel interested in the subject to the English and American edition. Indeed, we not only think we could prove the fact to the satisfaction of every one, but believe that it would not be difficult to render it very probable, that Mr D. never saw the original, or at least did not compare its text with that of the translation he was so unceremoniously appropriating to himself.

It is true that in some instances he has given a construction to a few phrases different from that adopted by the American translators; and has corrected many of the imperfections of style into which they had fallen; but this could be done by a person unacquainted with the French language; and, on the whole, the phraseology belongs to these gentlemen. Even in this respect Mr D. has not done, what we know the American editors proposed to do in their next edition, viz. correct a great many minor verbal and typographical errors; errors which ought not to have been retained in Mr D.'s edition, had he taken the trouble to read carefully the whole American edition, and compare it with the original. The most amusing circumstance in this business, however, is, that Mr D. in his translation—admitting that he has really translated the work—has, in many instances, hit on the very mistranslations which had unhappily crept into the American edition; thus fully confirming our assertions, that he is not the translator, and has probably never read the original. A few of these may be cited. They were pointed out in the review in this Journal already referred to. For instance, at page 10, we find "salts may be neutral, although they contain a small excess of acid or base," instead of, salts may be either neutral or may contain a small excess of acid or base. At page 34, "carbonization is an operation similar to calcination, but carried to a *greater* extent," instead of a *less* extent; page 53, "Meloe vesicatoria," for Meloe vesicatorius. The word Meloe has been made "Melo" in the English edition. Page 321, "Fresh taste," for cooling taste, &c.

Mr Davies says in his preface that "he has been induced to undertake the task of preparing the present edition after giving a full consideration to the merits of the work." It is well that Mr D. should at least thus acknowledge the merit of the work, and think it superior to every British production of the kind; but this was no reason for purloining the labours of the American translators. "J'apelle un chat un chat, et Rollet un fripon." He however admits in a note of two lines, page 27, that there exists such a thing as a translation of this work made in America, and transcribes with acknowledgment a table of weights and measures substituted by the American editors for the one contained in the original, as if the latter had done nothing else than alter an insignificant table. Even in this note he does not allow that he has adopted in his edition their translation; but, on the contrary, leaves it to be supposed that he also has made a translation of the original work different from the American.

But Mr Davies is not satisfied with giving his *English readers* to understand that the translation he offers them is his own. His rapacity extends still farther, and he does not blush to lay a *positive claim* to the additions made to the original work. Thus in his preface, page 8, he tells us, with a *sang froid* passing all bounds, that "he has made numerous corrections in the present edition, and he has also *added some new matter to the work*." But it may safely be asked of Mr D. where this *new matter* is to be found, unless perhaps he alludes to *his name* and numerous titles, one page of dedication, one of preface, besides four insignificant notes of from ten to twelve lines, six paragraphs (containing the results of the analysis of British mineral waters) of five lines each; and two half lines incorporated in the list of wines prepared by the American editors: the whole amounting to fifty-four lines!!

If this constitutes the new matter which Mr D. has announced in his preface, we must be allowed to remark that the surgeon of the Herts militia can make a great ado about a small matter. We are perfectly aware that in this edition there is some new matter, and a great deal of matter too, not to be found in the French original, amounting to upwards of sixty new articles, notes, &c., some of which are of considerable size, and of great value; but we beg leave once more to apprize our readers that this new matter belongs, not to Mr D. but to the American editors. And yet, with his usual liberality, Mr D. takes great care not to acknowledge his obligations to those gentlemen; or, as some more charitable critic might perhaps suppose, he has forgotten to refer the additions to their true source.

Moreover, the whole of the articles on the subject of the doses and mode of administration, which constitute one half, and by far the most elaborate and important part of the work, were entirely remodelled and compiled by the American editors. These articles have been unceremoniously copied by the conscientious *ex*-editor of the London Medical and Surgical Journal.

But either from some qualms of conscience, or from the fear of being accused of having too voracious an appetite in his pilfering, or, finally, perhaps, in order to show off his moderation in not appropriating to himself every thing within his grasp, Mr D. has omitted in his edition many important articles, and pruned others, which, had he retained entire, would, we are certain, have enhanced the value of his publication. Having, however, decided on expunging some of the additional matter contributed by the American editors, and curtailing other parts of it, we cannot help expressing our regret, that he should not have displayed more taste and judgment in the manner in which he has performed the task of abridgment. For our own part, acting on the principle, that a man who runs the hazard of his neck or of his reputation, for stealing, may as well play the thief on a large scale, because he gains nothing by moderation, we believe that, if we had been in Mr D.'s place, and had felt tempted to borrow without acknowledgment from other writers, who, in consequence of their great distance from England are presumed not to be known in that country, we would unhesitatingly have assumed the whole, and *boldly* taken our chance of discovery. Had the theſt remained unnoticed, he would have gained more credit for his supposed industry and learning, while, had he been discovered, he would have been (as he is) thought a plagiarist—a few pages more or less making very little difference as to the extent of his crime.

But we must here terminate our remarks on this unpleasant subject, with the expression of the hope that we have not fulfilled with undue severity the task which a sense of justice towards our fellow citizens imposed on us. In defending the claims of Dr Togno and Mr Durand, we have been actuated not only by a desire to award to them the credit to which they are entitled, but to uphold the character of the profession, which, we conceive, is wounded by any dishonourable act on the part of its members. This must be a sufficient apology for dwelling so long on this subject.

ART. XV.—ON THE UNITY OF THE HUMAN RACE.

Thoughts on the Original Unity of the Human Race. By CHARLES CALDWELL, M.D. *New York, E. Bliss,* 1830: *pp.* 178, 12*mo.*

We owe the ingenious author of the work before us an apology for not having noticed it at an earlier period. His knowledge, however, of the various causes, other than neglect, which may prevent articles from being passed in review in due season, will, we are sure, excuse us in his eyes on the present occasion.

This is not, if we are rightly informed, the first time in which Dr Caldwell has entered the lists of controversy on the important subject of the Unity of the Human Race. Be this as it may, his "Thoughts" are evidently those of a practised debater; of one who has studied his subject attentively, and let us add, with perfect sincerity, whatever may have been the justness of criticisms of other productions of the same pen, the present essay is written in a clear nervous style, without any adventitious aids of ornament or tinsel metaphor.

The subject involved in the discussion between Dr Pritchard and Dr Caldwell, is one of great moment; not as a mere matter of philosophical speculation, not as testing the sincerity of a man's belief in the literal meaning of the Mosaic account of the creation, but as bearing directly upon the question of the extent to which the same principles of education—intellectual, moral, and political, are applicable to the different people scattered over the surface of the earth. History will not have spread its ample pages before us in vain, if from them we can derive aid in unravelling some of the mysteries of this subject. But in [illegible] department of knowledge there may be seeming contradictions; special history or direct narrative may seem to be opposed by general history, as the record of a long and complicated series of events. Now, [illegible] truth, nor the records of truth, can be in contradiction with [illegible] appreciable phenomena, we are constrained, when satisfied of our knowledge of the latter, to deny the correctness of any account which necessarily supposes a state of things incompatible with these phenomena, and out of which they could not have arisen. Let us be understood. We speak now of natural events assumed to follow prior events, without supernatural interposition or the intervention of a miracle. The first postulatum, however, in the present inquiry, which ever side we take in it, is the miraculous creation of man and woman, types and parents of succeeding generations, from that event down to the present day. After this, all that follows in the varieties of the human race is supposed, indeed expressly admitted, to be explicable by the common agencies at work in the universe; the chief of which are climate, which implies of course locality and the absence or advancement of civilization, including moral and religious culture. The Mosaic account of the origin of the people that have inhabited and now inhabit this earth is, that a single man first, and very soon afterwards a single woman, were created by special providence. From their union have sprung, we are allowed to infer, all the inhabitants of the earth. Sacred history is silent, and its silence has been construed into an implied denial of there having been any other like beginning of the human race. But sacred history is likewise silent, except in one instance, and that is not clearly expressed, as to the causes of the great differences in the physical appearances and mental display of the various families of mankind—differences which we have strong if not conclusive evidence to show, existed in a marked manner at the time of Moses himself. We are no where, in the Mosaic writings, told of such differences among those whom we should regard as the sons and daughters of Adam and Eve in a direct line, being the result of miraculous agency; no causation of this kind has been claimed since, nor is it claimed at the present time, as accounting for the observed differences among the various people now living. We are left, therefore, free by this continued silence to inquire into the causes of the varieties of mankind as they are derivable from, or depend on, natural and ordinary phenomena. By one set of philosophers and physiologists these phenomena are deemed adequate to account for all the observed peculiarities among the inhabitants of the earth, compatibly with their common origin from one couple, as recorded by Moses. Another party deny the validity of the evidence adduced, and contend that the varieties of man are marked by too many distinctive characters, which are also of too permanent a nature to render it possible that they could all have had the same origin, that is, the same parentage. In justice to both parties in this controversy, it ought to be distinctly understood, that they who disbelieve in the unity of mankind, as being of one species, merely modified by climate and other obvious physical as well as moral causes, do not rest their proofs either on the Mosaic account or on any miraculous change wrought in varieties of the species. Their appeal is to the reason and common sense of their readers and auditors, by arguments deduced from known and appreciable phenomena, and especially those of a physiological nature. Nor, on the other hand, is it pretended, as far as we know, by the other party, who are on the negative side, to insinuate doubts of the first miraculous creation of man, and even of the authenticity of the Mosaic history. If called upon to express their opinions on this point, they would, we presume, allege that, as no part of the history of creation can be falsified by the laws which govern created beings, the account given by Moses is not *inaccurate* but only *incomplete*, and applicable to one, and that indeed the chief variety, or, as they would say, species of man. The same omnipotent Being was surely competent, however, to create more than one couple of the human species, and the admission that he did so cannot aught derogate from our notions of his wisdom and benevolence, while it has the immense advantage of enabling us to see, that the general laws which he first established, are entirely fitted to include all the emergencies and phenomena which have occurred, and shall occur, without the continued or frequent intervention of his special providence.

We believe that we have fairly displayed the ground which the two parties occupy in this controversy; and that whilst we deny the right of one of them to call the other irreligious and profane, so should we be averse to hear the other stigmatized as bigots, and as attempting to sustain a cause by adducing dogmas when reason fails. That Dr Caldwell, in the opinions which he holds, has no intention to undervalue religion, we clearly gather from the following paragraph in his address "To the Public," prefixed to the "Thoughts."

The language is creditable to the author, and none the less esteemed by us, because it is strictly phrenological, and every one would eagerly desire that it should be, as we ourselves believe it to be, true.

"A sentiment of religion enters, as an essential ingredient, into the constitution of man. It is as much a part of his moral nature, as a leg or an arm is of his organic. Deprive him of it, and he would be rendered monstrous. Like the loss of any other indispensable portion of himself the mutilation would unfit him to play his part in the drama of life. The sentiment of religion is adapted to the relation which man bears to his God, if it is not the immediate growth of it. It constitutes, therefore, an essential element of the law of his being. Without it, human nature would be an anomaly in creation, and an outcast from the scheme of benevolence and wisdom, which embraces every thing else."

In reply to the objection which *a priori* may be urged against the author for believing in a plurality of species, of different degrees of mental and bodily vigour, and, of consequence, in the superiority of one over the others, that it justifies tyranny of the strong over the weak, he thus expresses himself:

"It is not true, then, that the theory contended for favours injustice, oppression, and wrong, inflicted by the higher races of men on the lower. It gives no countenance, as it has been accused of doing, to cruelty or tyranny practised towards the Africans, or the aborigines of our country. Each race is entitled alike to all the rights it is fitted to enjoy. But each race is neither qualified, nor can ever become so, to enjoy and turn to proper account precisely the same rights, especially in the same degree, and has not therefore the same claim to all of them. The Caucasians are not justified in either enslaving the Africans or destroying the Indians, merely because their superiority in intellect and war enables them to do so. Such practices are an abuse of power; and where is the privilege that is not liable to abuse? Even the inferior animals, for whose equality to man no one contends, have their rights, of which nothing but injustice and tyranny can deprive them."

The Thoughts on the Original Unity of the Human Race, were originally committed to paper, with the intention of making them an article for one of the Reviews of our country, but it was found to be too long for this purpose. It is still, however, even in its present shape, a critical review of the work of Dr Pritchard, entitled

"Researches into the Physical History of Man." The object of this latter work, and the interest excited by the question in general, are thus described by Dr Caldwell.

"It is to establish, on philosophical ground, the doctrine of the original unity of man; in simple language, to prove the descent of the whole human race from a single pair. All minor considerations being disregarded, the accomplishment of this single purpose constitutes exclusively the design of the work.

"This subject, as a matter of science, having long excited a lively interest in the minds of naturalists, and being considered by many theologians as essentially connected with the truth of revelation, has been not only referred to by the ancients, but repeatedly discussed, by some of the ablest writers of modern times. Hence the general attention it has attracted. Independently of its own intrinsic importance, and the high relations which opinion attaches to it, Buffon has immortalized it by the splendour of his eloquence. The interest of the American public in it has been further strengthened, by an elaborate 'Essay on the causes of the variety of complexion and figure of the human species,' by the Rev. Dr Smith, late President of Princeton College."

A highly wrought eulogium then follows on the learning, ingenuity, labour and research, displayed in the work of Dr Pritchard, instanced in the knowledge of "geography and all its branches, but more especially its physical and topographical (ones), the history of man both natural and civil, general zoology, botany, anatomy, philology and classical literature."

After stating the spirit in which this subject ought to be approached and examined, the author takes occasion to qualify the eulogy pronounced a little before on the merits of Dr Pritchard's "Researches," as well as to express his views of the kind of authority possessed by the Scriptures.

"He (Dr P.) did not contemplate the theme of his inquiry with philosophical impartiality. He was swayed, by his wishes, to the perversion of his reason, and the prejudice of his judgment. His object does not appear to have been rigidly to *examine* the question, as to the original unity of man; but positively to *settle* it—*in his own way*. His resolution was fixed to dispose of the gordian knot by some means; to cut it, if he could not untie it. Hence, although he acquits himself, throughout his whole discussion, like a dexterous controvertist, he is evidently wedded to opinion—spell-bound and in chains. His intellect is not permitted to have a free scope. He never forgets his covenant with himself, that, right or wrong, the affirmative side of the question must triumph. He relies, therefore, on analogical evidence, as if it were positive, and instead of pursuing the direct path of the inductive philosopher, enters too frequently the labyrinth of the sophist. He plays, with no little dexterity, the part of a firm and faithful advocate, not of a stern and upright judge. And, if we mistake not, this misapplication of his powers, to reconcile incongruous things, arises from the cause to which we have already adverted, an implicit and prejudiced belief of every sentiment extorted by construction from the Old and New Testament.

"We mean no disrespect toward the Scriptures in saying, that however invaluable they are, as a system of moral and religious instruction, they are no authority in physical science. Nor should they ever be referred to, as such, in discussions connected with that branch of knowledge. The original unity, or the multiplicity of the human race, therefore, is as fair a question in natural history, as it would have been had Moses never alluded it. It belongs as exclusively to that branch, and is as legitimate a topic of inquiry, as any point that relates to the genus Equus, or the genus Taurus. Nor does an examination of the one imply a doubt of the verity of written revelation, or a denial of its value in matters of religion, any more than that of the other. Professing our veneration, then, for all that is moral and theological in the Scriptures, we shall proceed to the consideration of the subject before us, without any regard to their authority, in the department of science to which it belongs."

Dr Pritchard is accused by the author of relying exclusively on analogy for the maintenance of his hypothesis. The first instance is in referring each species of vegetables which the earth contains to a single male and female, "planted in a spot where soil and climate and exposure and all other circumstances were most favourable to their growth and propagation. But he does not admit that all kinds of vegetables ever occupied the same tract of country. Those of Europe, Africa, and America, are not all descendants of an Asiatic stock. Each continent was furnished at the beginning with its own aboriginal plants."

The diffusion of the seeds of vegetables is explained by Dr Pritchard by the agency of winds, rivers and smaller land streams, oceanic currents, and the bowels of birds and quadrupeds; and for the conveyance of the seeds of domesticated vegetables he relies on commerce, and the migrations of the human race.

These views are objected to by the author of the "Thoughts," as mechanical and dwarfish, savouring exclusively of earth and man, not of heaven and its all-wise and omnipotent ruler. Opposed to them, he believes that the Almighty so ordered all things at the creation, that in due time, and in the most suitable regions and places, the earth gave birth to its vegetable productions; not in pairs but in myriads.

"This it did spontaneously, in obedience to laws which still exist. We further believe, therefore, that were the whole vegetable kingdoms, stalks, seeds, and roots, entirely destroyed, it would produce them again. Nor have we formed these opinions hastily, or without reflection; and, if we are not mistaken, nature is rich in facts to confirm them. The following few, out of many that might be cited, tend to that effect.

"From almost any portion of uncultivated ground, in the United States, remove the forest timber, and the undergrowth that has covered it for ages, and, in a short time, a crop of different vegetables will spring up. Nor will they be the vegetables of the neighbourhood, but such as are found only in remote places. Shall we be told that the seeds or roots of the new plants had lain long buried and dormant in the ground, and vegetate now because hindrances are removed, and circumstances rendered favourable? We reply, that this is conjecture, and add, that it is exceedingly improbable. By no strictness of search can such seeds or roots be detected. The attempt has been made, and has uniformly failed. Not a germ of the strange growth has been discovered in the soil.

"Will others allege, that the seeds of the new vegetables have been carried by winds, and deposited in the place accidentally prepared for them? The seeds of the plants, to which we refer, are usually such as the winds cannot carry, because they are specifically heavier than the air. Winged seeds alone are transported by the wind. Will a third class contend, that the seeds are conveyed and deposited in the spot of cleared ground, by birds or quadrupeds? This is another conjecture, no birds nor quadrupeds being found in the act. Nor do so many of them frequent the place, as did before deprived of its timber, which afforded them a shelter from the weather, and concealment from their enemies. Some of the vegetables, moreover, are those, whose seeds no animals within our knowledge do carry and plant, in the manner alleged. It is the seeds chiefly of berry-bearing plants that are thus diffused. The fruit is eaten entire, by birds or other animals, the pulp digested, and the seeds voided. To treat the subject more circumstantially.

"In New Jersey, the Carolinas, and elsewhere, the following phenomena have been repeatedly observed. Cultivate, until you impoverish it, a tract of land, whose original native growth was oak and hickory. Cease to cultivate it, and it will produce, in a few years, a crop of pine. Suffer this to grow for fifteen or twenty years, until, by the falling and decomposition of leaves, branches, and bark, and the decaying of herbs and grass, the soil shall be again enriched. Fell and remove the pine, and oak and hickory will be again produced. Further. In the same states, cut down a pine forest, that has occupied the ground for ages, and the succeeding growth will be oak and hickory. In New Jersey, several flourishing nurseries of young oaks, produced in this way, exist, at present, in the centre of extensive forests of pine. Nor, we repeat, can the severest scrutiny detect, in the soil, either pine seeds in the one case, or acorns or hickory-nuts in the other. Are we asked the cause of these changes of vegetable productions? The answer seems easy. In the places specified, pine is the native growth of a poor sandy soil; and oak and hickory, of the same sort, when somewhat enriched by the dissolution of vegetable matter. Impoverish the soil, therefore, where oak and hickory have grown, and you fit it for pine. Fertilize that which has produced pine, and you adapt it to the production of oak and hickory."

The following, to the same purport, is quoted from Judge Peters, in the "Memoirs of the Philadelphia Agricultural Society."

"Intelligent surveyors, who have been occupied in running out new lands in Pennsylvania, and other states, remark, in a variety of instances, a total change of timber, in many extensive districts of wilderness. They discover, by the fallen timber, that the present forest trees are entirely different from those of the former growth. Those prostrate are, in many instances, of the resinous tribe, where those of a totally different kind are growing, of enormous dimensions.

"In my own memory, a total change of timber has occurred, in a tract of my own, containing about 800 acres, in Northampton county. Previously to our revolution, I knew it to be covered with pitch pine. It was called the *pine tract*. This growth of timber having been blown down by a tornado, was consumed by fires of the woods. It is now entirely reclothed with oak, hickory, and other valuable and well grown and thriving timber; and scarcely a *pine* tree is to be seen. I can give within my own knowledge, several instances similar, but of less extent. One, of a fine grove of *white pines*, thrown up *spontaneously*, on *old fields*, where no timber of that species had originally grown; and far from any such timber. Another, of a large body of valuable *chestnut*, where a person, now living, has reaped wheat and other grain; and where oak and hickory had been the precedent growth; and no timber of the latter kind is now to be seen on the adjacent lands."

From the same source we are told that

"In the course of the last century, the white pine sprang up *spontaneously* in Duxborough, in the state of Massachusetts, without having been previously a native of the neighbourhood. Between twenty and thirty years ago, there was a man still living, who had a perfect recollection of the first pine that ever made its appearance in the township: whereas, at present, that plant constitutes an eighth part of the timber of the place.

"In 'Mackenzie's Voyages' in North America, we find the following interesting clause. 'It is a very curious and extraordinary circumstance, that land covered with *spruce pine* and *white birch*, when laid waste by fire, should subsequently produce nothing but *poplars*, where none of that species of tree was previously found.' To agriculturists, in new settlements, it is perfectly known, that from the spots on which they burn their brush-heaps and log-heaps, when they are clearing their ground, new plants spring up, entirely different from any others in the neighbourhood; different indeed from any others existing in the country, except in similar situations. It is further known that, in many parts of Pennsylvania, and others of the Atlantic states, if a tract of uncultivated land be cleared of its timber and undergrowth, and enclosed by a fence, it will be covered, in a year or two, with a spontaneous crop of white clover. In this way a good pasture of that plant may be formed, where not a leaf of it had previously appeared. In many parts of the Alleghany mountain region, a piece of new ground, treated in the same manner, produces spontaneously a crop of timothy. Nor can either clover, timothy, their roots or seeds, be found in those places before they are cleared. Other facts to the same purport could be cited in hosts. It might seem superfluous to add, that they are directly opposed to our author's hypothesis, respecting the production and diffusion of vegetables. The earth was not made to be barren, but to be the fruitful home of something possessed of life. It does seem, therefore, that when a spot of ground becomes peculiarly favourable to the growth of certain vegetables, those vegetables spontaneously arise in it, precisely as other effects proceed from their causes."

Dr Caldwell, in opposition to the views of Dr Pritchard, holds the following ones.

"Certain species of vegetables abound in certain places, not because their progenitors were created in pairs or singly, and planted there; but because in soil, climate, situation, exposure, and other circumstances, those places were best adapted to their original production, their growth and propagation. On this principle, aquatic regions gave birth spontaneously to aquatic plants, mountain regions to mountain plants, and plains and valleys to the plants which cover them. The reader will judge for himself of the Doctor's reasoning and of ours. He will, in a particular manner, determine which of the two comports best with that unbroken aptitude, and uniform connexion between cause and effect, which we every where witness throughout the works of nature."

The views of Dr Pritchard respecting the origin and diffusion of animals are identical with those advanced respecting vegetables. "In given regions he finds certain animals more abundant than in any others, and these he considers as the primitive homes of their original projectors." To this Dr Caldwell replies:

"In the same region we find an abundance of eagles, hawks of various species, owls, wolves, foxes, wildcats, rabbits, hares, squirrels, partridges, pheasants, doves, blackbirds, sparrows, finches, and many others, both quadrupeds and birds. According to our author's notion, this region must have been the place of formation and original residence of the first progenitors of all these animals. Let us suppose a male and female of each kind to have been thus created, and placed in the neighbourhood of each other. What must have been the issue? To render an answer to this question can puzzle no one. Every child is master of it. The beasts and birds of prey must have soon died of hunger, without enjoying a single meal, or have killed and made food of the others, and then died for want of more. Their death, from famine, was inevitable. And even the smaller birds and quadrupeds, that are not deemed predacious, if not thus devoured by their enemies, must have first eaten up the *pairs* of insects, worms, and plants, of the district, and then died of hunger themselves. In a short time the earth would have been as destitute of living beings, as it was when first called into existence. Thus would this scheme of creation have failed; and the Deity, profiting by experience, must have tried another. An hypothesis more triumphant in folly, or more arrogant in pretension, than one which thus virtually questions the wisdom of Heaven, cannot be imagined. And its absurdity is augmented not a little by the consideration, that, according to the principles of it, its author is compelled to derive from single individuals or pairs, every mosqueto, gnat, maggot, mite, and animalculum infusorium, that has existed since the flood! For he does not believe in spontaneous generation at all; but adheres to the maxim *omnia ab ovo.* Hence he has recourse to his first pairs of insects and worms, as well as of human beings, and represents the Deity as their especial manufacturer. We shall dismiss this subject with a single remark. However rich our author may be in the knowledge of individual facts and events, he appears to have attended but little to their relations as cause and effect. Although learned, therefore, as a historian, and well informed as a naturalist, we cannot pronounce him able, as a philosopher."

Dr Caldwell admits the correctness of Dr Pritchard's definition of the term species. "It includes," says Dr P., "only one circumstance, namely, an original distinctness and *constant transmission of any character.* A race of animals or plants, marked by any peculiarities of structure, which have always been constant and undeviating, constitutes a species; and two races are considered as *specifically different*, if they are distinguished from each other by some peculiarities, which one cannot be supposed to have acquired, or the other to have lost, *through any known operation* of physical causes; for we are hence led to conclude that the tribes thus distinguished *cannot have sprung from the same original stock.*" Vol. I. pp. 90, 91.

We have not room for the detailed criteria laid down by Dr P. of sameness of race. These are, according to him, similarity of physical habits and character, subjection to the same diseases, resemblance of animal faculties, instincts and habits; ready admixture of breeds in a state of nature; analogy between the varieties of form, colour and the organization of parts, and changes of complexion by time and climate or from fortuitous circumstances. On each criterion Dr Caldwell offers in succession critical comments, which to our minds greatly impugn the positions of Dr Pritchard. We pass on to the main topic, on which we have the following pertinent observations by the author of the "Thoughts."

"For the illustration of this topic, let us suppose the original stock of mankind to have been the Caucasian, from which have descended at least three distinct and well marked varieties, the Mongolian, the African, and the American Indian. From this simple beginning our author has to people the world with its present races of men. Let us see how he will proceed, and vanquish the difficulties he will have to encounter.

"One of three events must first take place, neither of which is within the compass of probability; we might say *possibility*, and inconsistency with the laws which govern such occurrences, defy contradiction. A Caucasian father and mother must do what such a pair never has done, give birth to a true Mongolian, African, or Indian infant. Nor will one be sufficient. They must produce a pair, male and female, otherwise the race cannot be established. For the natural and healthy issue of a Caucasian and a Mongolian, an African, or an Indian, is necessarily a mixed breed, and does not belong to any race. The commencement of each new race required a concurrence of the same contingencies—the production of a male and female infant, of the same race with each other, but different from that of their parents.

Nor are these the only difficulties our author has to encounter, in his scheme of peopling the earth, as we find it. We will suppose them vanquished, and that he is in possession of a pair of African, Mongolian, or Indian infants, the offspring of Caucasian parents. If this pair remain among the Caucasians, they cannot propagate a different race, in its original purity. It is by no means certain that they will unite for that purpose, in as much as their predilections will more probably take another direction. But although they may thus unite and have issue, it cannot be admitted, because it does not comport with experience, that their descendants will always intermarry with each other. They will cohabit with Caucasians, and the offspring will be mongrel. Our author must, therefore, separate them from their parental stock, and remove them to such a distance, that they will be beyond the reach of intercourse for ages. In no other way can he establish a completely different race. But, at an early period of the existence of man, when geography was unknown, how the descendants of an original stock could have wandered thus remotely from their primitive home, through unexplored and trackless regions, and amidst the perils of death from starvation, beasts of prey, and other accidents, is a problem whose solution we leave to others. Nothing but compulsion could have led to such an attempt at migration, nor could any thing but a miracle have rendered it successful.

"If, with some writers, we suppose the primitive stock of mankind to have been the African, the same difficulties must have been encountered in the production of the Caucasian. But admitting the Mosaic account of the creation of man to be correct as to locality, the supposition that Adam and Eve were *negroes* is highly *improbable*, not to use a stronger term. Within the reach of history there have been no Africans in the supposed region of the garden of Eden. Nor is the climate of the country suitable to them. It can scarcely be imagined, therefore, that the Deity, having so peculiarly favoured and honoured man, by creating him 'after his own image,' would sully his kindness, by placing him in a residence unadapted to his nature.

"But we have yet another objection to our author's hypothesis. Why did his fancied deviation from an original stock produce but three or four different races? Accident being unlimited, why has not the number been multiplied? In a particular manner, why did the event occur only in early times? Human nature is the same now that it has been for thousands of years. Wherefore is it, then, that new races do not start up, at present, as well as formerly? No such phenomenon has occurred within the memory of man, or the reach of history. Tradition speaks of migrations, floods, earthquakes, and wars. So do poetry and fable. But, on the subject of the production of new races of men, even *they* are silent. Every race believes itself original, and consider others as the result of degeneracy. But none designates the time when the degeneracy began, or the causes that led to it.

"According to our author's principles of analogy, new races ought to occur now, much oftener than at an earlier period. He asserts, we believe correctly, that varieties arise much more frequently in domesticated animals, than in wild ones of the same species. But civilization is to man what domestication is to horses, oxen, camels, dogs, sheep, hogs, goats, rabbits, and poultry. Mankind are much more civilized now than they were several thousand years ago. The production of new races, therefore, should be more frequent.

"Our author's attempt to sustain his hypothesis by a reference to the occasional appearance of albinos, is futile. There exists no nation or tribe of albinos. Nor if there did, do they constitute a distinct race. The difference which makes them is superficial; a matter of mere colour, and nothing more. Complexion excepted, an African albino is a real African, and a Caucasian albino a real Caucasian. Nor do albinos always propagate their like. The descendants of those from an African stock are as often black as white; while such as are of Caucasian descent produce frequently perfect Caucasians. Let a colony of albinos be planted in an uninhabited island, all intercourse with the rest of mankind being prohibited, and a new race will not be the product. In every thing except colour, which will be mixed, the descendants will be identified with the original stock.

But we have a further objection to the ground on which Dr Pritchard refers to the albino variety, in support of his hypothesis. Albinism is a disease; at least an infirmity. It consists in a want of what is necessary to the perfection of man—that fine mucous tissue, which lies between the cuticle and the true skin, and gives the natural and healthy complexion. Nor are albinos so vigorous and hardy as the more perfect individuals of the races from which they spring. They are less capable of sustaining excessive heat, cold, exposure and fatigue. From a deficiency of the dark pigment on the iris, they are also, in a considerable degree, intolerant of light. As an evidence of their constitutional infirmity, they become prematurely old, and are rarely long-lived. We do not recollect an instance to the contrary. Instead of constituting, then, a new and distinct race, as Dr Pritchard seems inclined to allege they do, albinos are but enfeebled individuals of an original race."

Examining the subject on chronological data, Dr C. makes the following remarks:

"According to accredited dates, it is four thousand one hundred and seventy nine years since Noah and his family came out of the ark. They are believed to have been of the Caucasian race; and the correctness of the belief there is no ground to question. We shall assume it, therefore, as a truth, without adducing the reasons which seem to sustain it. Three thousand four hundred and forty-five years ago, a nation of Ethiopians is known to have existed. Their skins, of course, were dark, and they differed widely from Caucasians in many other particulars. They migrated from a remote country, and took up their residence in the neighbourhood of Egypt. Supposing that people to have been of the stock of Noah, the change must have been completed, and a new race formed, in seven hundred and thirty-three years, and probably in a much shorter period. And near three thousand years ago the Greeks had a knowledge of a nation of people with a black skin, thick lips, and woolly hair. Since the earliest period of history, therefore, the present races of mankind have existed. The relation of these facts to the present discussion will appear hereafter."

The notice of the differences between the two most marked races, the Caucasian or white, and the African or black, is as follows:

"Under the term African, we shall include the Hottentots, the Boschesemen, and the Papuas, or negroes of Oceanica.

"The general diversity between the Caucasian and the African races is composed, like other aggregates, of many subordinate ones. It is corporeal and mental. The former consists of differences in colour, texture, and figure; the latter, in intellect and moral feeling. The difference of colour is almost universally represented to be seated alone in the rete-mucosum. This is a mistake. It is seated in both the rete-mucosum and the cuticle, the latter being considerably darker, as well as thicker, in the African, than it is in the Caucasian. The difference of texture exists chiefly in the hair and some of the bones, the former being, in the African, much more harsh and horny, and the latter denser, harder, and heavier. The difference of figure arises principally from the shape of the bones, their modes of articulation, and the form of the muscles; to which might be added, the form of the brain, that organ being known to give shape to the scull.

"As respects the colours of the two races, our analysis shall be brief. The Caucasian is fair and ruddy, and the African black, or of a deep and dusky brown. The ruddiness of the former race arises from the tinge of the blood, contained in the capillary vessels of the true skin, being visible through the rete-mucosum and the cuticle, both of which are very thin, and somewhat transparent. The colour of the latter is produced chiefly by the secretion of a dark pigment, by the vessels of the true skin, and its deposition in the cells of the rete-mucosum. This pigment appears through the cuticle, which, although, as already stated, much thicker and darker than in the Caucasian, is sufficiently transparent to show what is beneath it. In the African, the rete-mucosum is comparatively thick; whence arises the softness of his skin to the touch. When the human skin is examined with a microscope, it exhibits a great number of small sulci, or depressed lines, meeting and intersecting each other at different angles, with elevations between them; the whole resembling somewhat the surface of a bed-quilt. These elevations are much fuller, and in stronger relief in the African than in the Caucasian. In the former they resemble the interstices of a bed-quilt stuffed; in the latter, without stuffing. The skin of the African generates less heat than that of the Caucasian, and its temperature is therefore lower. We ought rather to say, that it more powerfully and successfully resists the action of heat from without, tending to raise its temperature. It resists a low temperature with less power. Hence the superior fitness of the former for hot climates, and of the latter for cold ones. It is obvious, then, that the whole amount of difference between the skins of these two races is great—much greater, we apprehend, than it is generally supposed to be.

"The same is true as relates to the hair. But the precise difference here cannot be adequately made known in words. To be fully understood, it must be seen. The hair of the two races must be examined with a microscope. The difference in texture and character will then appear not only manifest but striking. As already stated, the African hair, although smeared with an unctuous and softening secretion, will be found to be harsh, crisp, and horny, and rough from a multitude of projecting points. That of the Caucasian, although less unctuous, is much more pliant, soft and smooth. It is also more distinctly fibrous in its texture than the other. In fact, the two productions are as different from each other, in their general appearance, we might say much more so, than many plants are, which botanists refer to different species.

"But the difference between the osseous and muscular systems of the two races is still more plain and striking, because the parts are larger, and can be more easily examined and compared. In the African, the bones of the head are thicker, more compact, and, therefore, stronger and heavier, than in the Caucasian, and the cavity of the cranium much smaller. The forehead being narrower and more retreating, the sincipital region is inferior in its capacity, in proportion to that of the occipital. The orbitar cavities are wider and deeper, and the zygomatic processes of the temporal bones larger and more projecting. Although the nose is short and depressed, its cavities are more capacious, and the olfactory nerves are spread over a more extensive surface than in the Caucasian. The upper maxillary bone is much broader and stronger, and projects more forward and outward, and the under one, being also thicker and stronger, but narrower in its body, and inclined outward to meet the other, has no projection to form a chin. Hence, in correspondence with the shape of the maxillary bones, the African has an upper lip of unusual depth from the nose to the mouth, an under one uncommonly short from the mouth downward, and instead of projecting, like that of the Caucasian, his chin retreats. In the strictness of technical language, he can scarcely be said to have a chin. Corresponding with the direction of his maxillary bones, his teeth point obliquely outward, while those of the Caucasian are nearly perpendicular. Nor is their position the only respect in which they differ from the teeth of the Caucasian. They are larger, stronger, sharper, further apart, and covered with a thicker and firmer enamel. The cuspidati are more truly canine, and the projections from the grinding surfaces of the molares bolder and more pointed. In fine, they resemble much more the teeth of the ape, and are better fitted for cutting and tearing. In consequence of this general structure of the hard and soft parts, the African's mouth or muzzle projects considerably beyond his nose. To this may be added, as a further diversity, in an important organ, that by far the greatest portion of his brain lies behind a perpendicular line drawn from the external opening of the ear to the top of the head, while, in the Caucasian, the portions on each side of such a line are much more nearly equal.

"Corresponding in their character to the maxillary bones and the teeth, the muscles appropriated to the movement of those parts, are much larger and stronger in the African than in the Caucasian. Hence the superior power and dexterity of the former in biting and chewing hard substances. We once knew an African, who, in combats with his fellow servants, was almost as dangerous in his snaps as a dog. To sever a finger or a thumb, or to take a mouthful of flesh from the arm or the shoulder, was the act of but a moment. After what we have said, we need scarcely add, that it requires a severer blow on the head to fell an African, or fracture his scull, than it does to produce a similar effect on a Caucasian of the same size and strength.

"But we have not yet done with the bones of the head. The foramen magnum, in the occipital bone, is larger in the African than in the Caucasian race. The necessary consequence of this is, that the medulla oblongata, which passes through it and fills it, is also larger, as is indeed the whole of the spinal cord, in common with many of the nerves. We may here remark, that the nerves of the African generally are larger in proportion to his brain, than those of the Caucasian. In this he resembles the inferior animals, occupying a station between them and the individuals of the race with which we are contrasting him. Nor is his head equally well balanced on the spinal column. Such is the position of the condyles of the os occipitis, which rest on the atlas, that the portion of the head behind them preponderates over that which is before. This, added to the sloping of the forehead backward, gives to the African countenance that upward direction which it is known to possess. While the front line of the Caucasian countenance is nearly perpendicular, that of the African falls far behind the perpendicular, making with it an angle of many degrees.

"The difference between the upper extremities of the African and the Caucasian are peculiarly striking. In the former the clavicle is rather shorter and more crooked than in the latter, while, in proportion to his height, the arm is longer. An African of five feet eight or nine inches has an arm considerably longer than a Caucasian of six feet. Nor is this all. In the African the forearm is longer in proportion to the humerus than in the Caucasian. His hand, which is not so large, is more bony and tendinous, and less muscular, and his fingers are longer, slenderer, and less fleshy. Hence when he strikes with his knuckles, in combat, he so frequently cuts his antagonist, while the Caucasian only bruises; or, at least, cuts less severely, by a blow of the same force. His nails project more over the ends of his fingers, are thicker and more adunque, and bear a strong resemblance to claws. The veins of his hand are smaller, we believe fewer, and differently distributed. From the small amount of blood, which circulates through it, the hand of the African is rarely very warm.

"In the African the bony fabric of the thoracic portion of the trunk is firmer than in the Caucasian, and differently shaped. The ribs are thicker and stronger, and so formed and placed, as to flatten the chest at the sides, narrow it before, and deepen it somewhat, from the sternum to the spine.

"Descending to another important part of the body, we find further differences. In the African of both sexes, the bones of the pelvis are slenderer than in the Caucasian. In the male African that cavity is less capacious, and in the female more so, than in the male and female of the Caucasian race. Nor is it in the bony structure only of this portion of the body that a difference exists. The muscles also are dissimilar. In the African, the muscles that cover the sides of the pelvis are less full than in the Caucasian, while those that cover it behind are more so. Hence the narrowness of the hips of the former, from side to side, and the ungraceful projection of the nates backward. Corresponding to that of the hips, the form of the whole African thigh differs materially from that of the Caucasian. It is more flat laterally, thinner from side to side, and deeper from front to rear.

"In the two races the lower extremities are, in their relative proportions, the reverse of the upper. In their entire measurement, they are shorter in the African than in the Caucasian, while the thigh, which corresponds to the humerus, is longer in proportion to the leg, which is the part that corresponds to the forearm. The superior length of the African thigh in proportion to the leg, is a point which has received from naturalists but little attention. Yet it is of peculiar interest in the present inquiry. The difference in the articulation of the bones of the thigh and leg in the two races, which is somewhat striking, can be learnt only by inspection. It may be observed, however, that it is such as to produce in the African a perceptible flexure of the limb, at the knee, in a forward direction. His lower extremity, therefore, is not so straight as that of the Caucasian. The difference in the bones of the leg is great, and we might add, peculiarly characteristic. In the Caucasian, the tibia or large bone is straight, and the fibula or small one somewhat crooked. In the African the reverse is true. By a bend a little above its middle, the tibia is gibbous in front, whilst the fibula is straighter than in the Caucasian. In the two races the muscles of the leg are also very different. This is more especially the case with the gastrocnemii. In the African the belly of these muscles is small, and situated near the hock, while their slenderer portions and the tendo Achillis, which is attached to them, are long. This gives to the limb a very unsightly form. In the Caucasian the belly of the gastrocnemii is full and round, and situated lower, so as to bestow on the leg its fine proportions and elegant shape. Here the tendo Achillis is short.

" In the size and form of the bones of the foot, and their articulation with those of the leg, the African differs widely from the Caucasian. His os calcis, in particular, is much longer, less rounded and malleolated at its posterior extremity, clumsily attached to the astragalus, and points almost directly backwards. The metatarsal and tarsal bones are also larger, and so united as to form surfaces nearly plain on both their upper and under sides. His toes, like his fingers, are longer, slenderer, and less fleshy than those of the Caucasian, and his toe-nails thicker and stronger, and more projecting and adunque. From a want of fleshiness in its muscles, his entire foot is bony and tendinous, and its blood vessels are small. Such are the leading differences in detail. In the aggregate, they render the foot of the African longer, broader, flatter, harder, and much more projecting and pointed behind its junction with the leg than that of the Caucasian. His foot and leg resemble somewhat a mattock and its handle; broad before, and long, narrow and sharp behind. His toes also turn so much outward, that when he walks, the inside of his foot is almost in front. Owing to its scantier supply of blood, his foot is more easily chilled and injured by frost, than the foot of the Caucasian. In the upper and lower extremities, then, the teeth, the maxillary bones with their muscles, and the head generally, the differences between the two races of men are numerous and great. But it is particularly to those parts of the system that the zoologist directs his attention, when looking for marks to settle his classification. Animals very much alike in other parts, are referred to different species and even genera, on account of striking dissimilarities in these.

" But all the differences between the two races are not yet enumerated. In the African the stomach is rounder and the blood of a darker colour than in the Caucasian race. In their genital organs they also differ much from each other. In the African the penis is larger, and the testes smaller, and he has no *frenum præputii.* These circumstances are the more important, because they assimilate him, in the parts we are considering, to the male ape, and other inferior animals. Indeed, in those organs, he resembles the ape fully as much as he does the Caucasian. Nor is the resemblance confined to them alone. It extends to the head and face, the arms, hands, especially the fingers and nails, the flatness of the sides of the chest, the bones of the pelvis and the muscles that cover them, the lateral flatness and thinness of the thigh, its depth in the opposite direction, its length compared to that of the leg, the forward bend of the knee, the general form of the foot and its connexion with the leg, and the length and taper of the toes, together with the form and position of the nails. In fine, let a well formed Caucasian, an African possessing the real likeness of his race, and a large ourang-outang be placed along side of each other, and the gradation of figure, from the first to the last, will be obvious and striking. The Caucasian will be most perfect, the African less so, and the ape the inferior of the three. It will be found, however, that in several leading and characteristic points, the resemblance between the African and the ourang-outang will be nearly as strong, as between the former and the Caucasian. And if, for the *common* African figure, that of the Boschеseman or the Papua, be substituted, the strength of resemblance to the ape will be much increased. We had once an opportunity to examine the person of a Boscheseman, and we have a lively recollection of our conviction, at the time, that it did not, in figure, stand more than midway between the large ourang-outang and the Caucasian. Among other peculiarities of form, that being had a very unsightly projection of the nates, produced, not entirely by muscle, but in part by a substance resembling in texture the protuberance on the buffalo's shoulder, or the massy tail of the Thibet sheep. We have seen apes with a similar production, only somewhat firmer. Near to each shoulder of the Boscheseman was another moss of the same anomalous substance. We were assured that both these, and those on the nates, were natural, and not the result of diseased growth. The likeness of the Boscheseman to the ape, in expression of countenance, as well as in shape, is so striking, as to be recognised by every one. The quick and peculiar movement of the eyes and brows, which so strongly characterizes the ape, is practised also by the human savage. In White's essay, then, on the "Gradation in man," there is much truth, and the author might have carried his comparison further than he did.

"We have already alluded to a striking difference, asserted by the late Dr Good to exist between the vocal organs of man and those of the ourang-outang and the pongo. Of the two latter he says, 'They have a peculiar membranous pouch connected with the larynx or organ of the voice, which belongs to no division of man whatever, white or black. The larynx itself is, in consequence of this, so peculiarly constructed as to render it less capable even of inarticulate sounds, than that of almost every other kind of quadruped.'

"We do not pronounce this a positive mistake. But we do consider it highly improbable. Dr Good's assertion is founded, we believe exclusively, on the authority of Camper, whose attainments, as a comparative anatomist, were superficial. More than a century and a quarter ago, Dr Tyson dissected an ourang, strictly scrutinizing its vocal organs, and the following is his report on the subject.

" 'As to the larynx in our pigmy, unless I enumerate all the cartilages that go to form it, and the muscles which serve to give them their motion, and the vessels which run to and from it, and the membranes and glands; there is nothing that I can further add, but only say, that I found the whole *structure of this part exactly as it is in man;* and the same too I must say of the os hyoides.' Again he says, 'For the ape is found provided by nature with all those marvellous organs of speech, with so much exactness, that even the three small muscles, which take their rise from the apophyses stytoides, are not wanting.' Dr Harlan, of Philadelphia, who is versed in the dissection of anthropomorphous animals, and whose accuracy, as a comparative anatomist, will not be questioned, testifies positively to the same fact. Between the organs of voice, in the ape tribe and in man, he has found a 'precise resemblance.' The authority of Dr Good, therefore, in his 'Book of Nature,' adds neither strength nor plausibility to the hypothesis he so pertinaciously struggles to maintain.

" The domestic dog, the wolf, and the hyena, are acknowledged to belong to different species. Yet let a skeleton of each be prepared, and it will be much more difficult to distinguish one from the other, than to distinguish an African from a Caucasian skeleton. The same is true of the skeletons of the tiger and the large Asiatic panther. Indeed it is much easier to distinguish between the skeletons of a Boscheseman and a Caucasian, than between those of any two species of the cat kind, that are similar in size. We may safely add, that there is no more difficulty in distinguishing between the African and Caucasian skeletons, than between those of the horse and the ox.

" Such, then, are the leading differences between these two races of mankind, not alone in the colour and texture of the hair and skin, but in many other important organs. With the extent of the effects thus before us, let us again advert to the causes, to which they have been ascribed, that, by a comparison of the product with the reputed source, we may the better ascertain what degree of natural relation exists between them."

"It must be shown," says Dr Caldwell, "either that the conversion of one race into another has been effected by climate as a positive event; or that under the influence of that agent, the change is now in progress, and that from the well known nature and power of the cause, there is good ground to believe that it will be completed."

To this inquiry he proceeds in the following terms:

" That the subject may be fairly discussed, we shall make, for the occasion, two concessions; that mankind are the descendants of a single pair; and that, as heretofore admitted, that pair were Caucasians. Until changed by climate, their progeny were necessarily of the same race. To render our disquisition as acceptable as possible, we shall moreover assume, as its basis, the Mosaic account of the propagation of man. According to that, Noah was the ninth in descent from Adam; having been born and reared in the land of his forefathers, there is no reason to believe that he had deviated from them in race. We are authorized, therefore, to assume it as a postulate, that he and his family were Caucasians.

"When that household descended from the ark, they were eight in number, all of the same race, and by them the earth was to be peopled, with the several races which now inhabit it. As we possess no information to the contrary, we are bound to believe that physical causes were the same then that they are now. The influence of climate was no stronger, and could not, therefore, in a shorter time, produce in man the changes necessary for the formation of a new race. But, as already mentioned, in seven hundred and thirty-three years from the time of Noah's debarkation from the ark, a nation of the Ethiopians existed; and a party of them, migrating from the Indus, the chief river of their native country, settled on the borders of upper Egypt. They had black skins, and features different from those of the ancient Egyptians, who appear, from their mummies, to have been Caucasians. Were the changes, which thus constituted a new race, the product of climate? A reasonable answer to this question can be derived only from the effect of climate, at the present time, and within the period known to history. And it must be negative. In seven hundred and thirty-three years, climate cannot now produce a new race; nor has it been able to do it, in that period, for the last two thousand years. If the following facts do not actually demonstrate the truth of this, they give to it such strength of probability, as is tantamount to demonstration.

"It is near seventeen hundred years since the Jews were banished from their native country. Soon afterwards a colony of them migrated to the coast of Malabar, the climate of which is similar to that of the Indus, and settled among a people whose complexion is black. Their religion prohibiting them from intermarrying with the natives, they have kept their blood unmixed. The consequence furnishes, in the present disquisition, an argument which we deem unanswerable. No change in their race has been produced. They are as perfect Caucasians now, as they were when they migrated from the land of Judea. They were visited some years ago by Dr Claudius Buchanan, who states, in his travels, that both in 'complexion and features' they resemble very strikingly the Jews of Europe. If, then, in seventeen hundred years, of latter times, the climate of India has produced no change in the Caucasian race, is it probable that in seven hundred and thirty-three years from the subsidence of the deluge, it could have so entirely revolutionized it, as to convert it into another? We feel convinced that no one of intelligence will reply in the affirmative.

"It is somewhat more than a thousand years since Persia, the god of whose inhabitants was fire, submitted to the yoke of the Moslemin. Rather than renounce their religion, a colony of the fire worshippers fled immediately to India, and settled there, amidst a people of a black complexion. Their descendants in that burning region are still known by the names of the Parsees. Like the Jews, they have been prevented, by their religious tenets, from intermarriages with the natives. No mixture of the blood, therefore, has changed them. Nor have they been changed by climate. Colonel Wilks, who is familiar with their appearance, assures us that they are a fine race of men, perfectly Caucasian in complexion, feature, and figure, and altogether dissimilar to the people around them.

"Three centuries have elapsed, since the Portuguese colonized Zanguebar and Mosambique, on the eastern coast of tropical Africa; and, at a much earlier period, the same places had been settled, and considerable cities had been built in them, by large bodies of Arabian traders. But, although the colonists have been greatly reduced in number, and deteriorated in constitution, by the sickliness of the climate, and although their complexion has been somewhat darkened by the action of the sun, no perceptible progress has been made in the conversion of them into a different race. In feature, figure, and hair, those whose blood is unmixed, are as dissimilar to the African now, as their ancestors were, when they migrated from Europe. The same is true of the descendants of the Spaniards, who settled in tropical America, in the early part of the sixteenth century. Where their blood has remained pure, their race is unchanged. They are Spaniards still in both complexion and features. Of the descendants of the English, who have resided in the West Indies, for several generations, the same may be asserted. With some loss of ruddiness of complexion, their English character is still complete. The Moors have inhabited some parts of tropical Africa, time immemorial; yet, neither in feature, complexion, figure, nor hair, have they, within a thousand years, made any more of an approximation to the negroes, than the negroes have to them.

"We venture to say, then, and speak confidently, that no case exists now, or has ever existed, of the conversion of the Caucasian into the African race, or even of the production of a tendency to it, by the influence of climate. Nor has the reverse event ever occurred. The African race has never, within the memory of man, or the reach of history, been changed by climate into the Caucasian; nor has the slightest tendency of the kind been produced by it. It is nearly two centuries since the Africans were first introduced into our own country. The eighth generation from the original stock is now living, and the race is unchanged. Those whose blood is unmixed, are as perfect Africans now, as their ancestors were, when they left their native country. As relates to the real characteristics of race, their complexion, hair, features, and figure, are unaltered. The stories propagated by a few, and credited by many, of their approximation to the Caucasian character, are groundless. Observation disavows them; and they owe their being to a spirit of theory, and a resolution to maintain *per fas et nefas*, the hypothesis of the original unity of man. Eradicate that spirit, and negroes will be no longer reported to be changing into white men. That many of them are improved, in personal appearance, by good fare and kind treatment, is true. So are our horses and oxen. But their races continue. They are horses and oxen still. Of the Africans in the United States the same is true. Yet had they even become lighter-coloured, the event would not have been surprising. On the contrary, it might have been considered natural, in the ordinary line of physical cause and effect. Black is the native complexion of the African, as fair and ruddy is of the Caucasian. And the depth of his colour is in proportion to the soundness and vigour of his health. When they are impaired, we know, from observation, that his complexion becomes lighter. Disease renders him pale, as it does the Caucasian. Remove him to a climate unfavourable to his constitution, and with the loss of his health and vigour, he will lose somewhat of the depth of his glossy black. Had the climate of the United States, then, actually diminished the darkness of the African complexion, the fact would have been explicable on the principles here stated, without being referred to any tendency to a change of race. But although negroes are best adapted to a tropical climate, where the temperature is uniform and high, yet our hot and long summers make such amends for our cold but short winters, that they retain, in the United States, both their health and complexion. We have seen many American-born Africans, of the seventh and eighth generations, whose depth and glossiness of colour would render them remarkable in the country of their ancestors. Nor is the real character of their hair, features, and figure, any more changed than the colour of their skin. If their hair is longer, it is because they cover it, comb it, and are otherwise careful of it; circumstances which, at the same time, add to its blackness. In house-servants, who are well clothed, cleanly, and healthy, and who receive a full supply of nourishing food, both the skin and hair are darker than in those who labour nearly naked in the field. So far is it from being true, as some contend, that the African is indebted to the tropical sun for his complexion. Besides, those parts of their bodies which are always and most carefully covered and protected from the sun, are of the deepest black. Heat does not blacken them by changing their skin, as fire chars wood; a vulgar notion which many entertain. Even men distinguished in science, have mistakenly attributed their blackness to carbon deposited or generated in the rete-mucosum. In truth, their colour is the result of a specific secretion. The black pigment, in which it consists, is formed from the blood. But it is not carbon. It is not as combustible as that substance; nor can it be converted, by burning, into carbonic acid gas. The secretory process which generates it is, we repeat, specific. It is, moreover, as peculiar to those possessing black skins, and as distinctive of their race, as the process which produces castor is of the beaver, or that producing musk of the animal to which it belongs."

Room is not allowed us for specifying the many other forcible objections to the opinion of the unity of the human race, as held by Dr Pritchard; and, for the same reason, we are constrained to omit many explanations of seeming incongruities by supposing the fact of different races, unlike each other in many particulars, and manifestly unequal in their intellectual powers. We cannot, however, forbear from inserting the following observations of Dr Caldwell on this point.

"It is singular that in the discussion of the question respecting the several races of men, mere animal or organic differences, we mean those of a corporeal character, have been almost exclusively attended to. As far as our recollection serves us, those of morals and intellect have never received the consideration they deserve. Yet we venture to assert, that in their aggregate, they are no less striking and characteristic than the others. Nor are they less distinctive as attributes of race. We trust, therefore, that a brief notice of them will not be without interest. We deem it moreover well calculated to shed light on the subject we are discussing.

"As relates to intellect, a vast pre-eminence belongs to the Caucasian. Nor is this, as many contend, exclusively the result of a better education. It is as truly the gift of nature as his complexion and figure. As well may the fine proportions of his head, and the symmetry of his features, be pronounced the mere issue of training, as the endowments of his intellect. They result alike from the original superiority of his organic nature.

"In the history of man, there must have been a time, when the Caucasian was as uninstructed as the African or the American Indian. Like them, he must have once been 'nature's simple child.' Wherefore, then, in the career of intellectual improvement, has he left them at such an immeasurable distance behind him? And why is this the case, not accidentally and in some places, but always and uniformly, wherever he is found? The answer is easy. He is superior to them in native intellectual faculties. He is so endowed, by reason of a higher and better organization, that he can instruct himself, by attending to the objects of nature around him, observing their phenomena, and studying their laws. In other words, he can read and interpret the book of nature, the true source of knowledge and wisdom, and thence derive instruction. And thus, of necessity, did his education begin. But this the African and the Indian cannot do; at least they cannot do it with the same facility, and to the same extent, because they are inferiorly organized and endowed. Nor, for the same reason, can the Mongolian and the Malay thus amply instruct themselves. Nature has been less bounteous to them than to the Caucasian race. To the eye of a competent judge they bear, on their aspect, the stamp of inferiority. Nor is it possible for it to be otherwise, unless they were differently organized; for organization is as much the source of intellectual as of muscular power. Were the present a suitable occasion to dwell on it, all this is susceptible of proof.

"To the Caucasian race is the world indebted for all the great and important discoveries, inventions, and improvements that have been made in science and the arts. Without specifying any of them, we say *all*, and do not speak extravagantly. The African and Indian races* have not made one; the Mongolian none that are really great. The Caucasian race make such uniform and rapid progress in intellectual improvement, that every succeeding generation is far in advance of that which immediately preceded it. So true is this, and so great and striking the advance in knowledge, that could Vaucanson, Black, and even a Newton, return to earth, they would find themselves but little more than novices in many parts of their favourite sciences. But what, in this respect, is the condition of the African and Indian races? Motionless; fixed to a spot, like the rocks and trees in the midst of which they dwell; each generation pursuing the same time-beaten track, with that which went before it. Even century succeeds to century, and the last finds them the same degraded and unimproved beings with the former. We speak not of the Africans who have mingled with the Caucasians, and acquired some smattering of their knowledge. We refer to those confined to their native country, and the society only of their own race. And we are justified in saying, that for the last five hundred years, or to as early a period as our acquaintance with them embraces, they do not appear to have advanced of themselves a single step in the knowledge of nature, or the practice and improvement of the arts. Even under all the instruction that can be imparted to them, their intellectual inferiority remains proverbial. The few among them who acquire a very moderate share of knowledge, can scarcely be said to constitute an exception to the general rule. Under all the circumstances of the case, we do not hesitate

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"* To this the invention of the Cherokee alphabet forms no exception. The author of that has much Caucasian blood in his veins. His father was a Scotchman. He is, therefore, a half breed. Nor is this all. The train of thought, which led to the invention, was first awakened by a letter written by a white man. Without the influence of that 'speaking leaf,' the alphabet would yet have had no existence. It is virtually, therefore, a Caucasian production."

to repeat our conviction, that the stationary condition of the Africans and Indians, contrasted with the rapidly improving one of the Caucasians, constitutes between the races a distinction as characteristic and strong, and much more important, than the differences in the form of their features, and the colour of their skins. Nor is the one more radical and immovable than the other. As easily may a tribe of Africans or Indians be rendered white in their skins and comely in their features, as equal to the Caucasians in intellectual endowments. To effect either, a change of organization is essential. As relates to the mental cultivation and improvement, the Indian and African races resemble the inferior animals. They do not profit by experience. The descendants equal their progenitors, but do nothing more. The former do not, as is the Caucasian practice, begin where the latter terminate, and make further advances. If the son can imitate the sire, he is content, and cherishes no ambition to surpass him. Hence, as already observed, each generation grovels through the same humble course, without attempting to arise above it, or appearing to know that there is any thing better."

"The native bent of Caucasians is to civilization. Of the North American Indians, the reverse is true. Savagism, a roaming life, and a home in the forest, are as natural to them, and as essential to their existence, as to the buffalo, or the bear. Civilization is destined to exterminate them, in common with the wild animals, among which they have lived, and on which they have subsisted. All experience admonishes of this. In numbers the Indians and buffaloes of our western wilds diminish alike and from similar causes. And they retreat alike from civilization. Neither of them can flourish in a domesticated state. As soon, and as much in conformity with nature, shall the olive be fruitful on the coast of Labrador. Every effort hitherto made to civilize and educate the Indians, has but deteriorated them, and tended to annihilate them as a people. And such, from their moral constitution, must continue to be the case, until the race shall become extinct. Let the history of the Indians of New York and New England be consulted, and such is the only lesson it will teach. And it will teach it conclusively. Nor, when fairly interpreted, does the history of the Creeks, Cherokees, and Chickasaws, inculcate a different one. It speaks oracularly of the extinction of the aborigines. But one expedient exists, by which a trace of them can be saved; intermarriages with another race. By the requisite means, half and quarter-breeds, and those having still less of the Indian in them, may be educated, and rendered useful members of civil society. But as readily shall the wolf and the fox become faithful house-dogs, as the entire Indian a civilized and cultivated man."

On the question, of how far the Indians may be supposed capable of improvement, the author offers the following additional remarks.

" Whatever amendment may have taken place in the condition of the Indians of the west and south, (and it is far below what report would make it,) is to be ascribed chiefly to a mixture of races. Half breeds, as already mentioned, may be somewhat civilized and instructed; and they are, for the most part, chiefs and rulers. The present generation of real Indians are similar to their progenitors, except in the use of the hatchet and scalping knife. And in that they are restrained by necessity and fear. Give them an opportunity to do it with impunity, and they will riot in blood as ruthlessly as their forefathers. The moral character, then, we say, of the Indian, especially his radical unfitness for civilization, constitutes between him and the Caucasian a much more important line of distinction, than the difference in the form of their features, and the colour of their skin.

" For evidence corroborative of our views respecting the character, condition, and prospects of the Indians generally, but especially of the Cherokees, we might refer to a late state paper issued at Washington, entitled, a 'Report from the Committee on Indian Affairs, respecting the removal of the southern Indians.' That document, which is written with no common ability, is the result of long and patient inquiry by the members of the committee. It is fairly presumable, therefore, that its statements are correct. From many passages to the same effect, we extract the following:

" 'The true nature of the calamity which threatens them, (the southern Indians,) and from which some power competent to save them is invoked, by so many considerations of generosity and pity, will be partially understood, when the fact, which to many must be incomprehensible, is stated, that out of a population of 60 or 65,000 souls, in the enjoyment of twenty or thirty millions of acres of fertile land, 50 or 55,000 may be said to have *no property at all*, and that a large portion of them are in fact *below the condition* of the *common paupers* among the whites.'

" Again; 'The number of those who control the government (of the Cherokees) are understood not to exceed twenty-five or thirty persons. These, together with their families and immediate dependents and connexions, may be said to constitute the whole commonwealth, (consisting of " 12,000 souls") so far as any real advantages may be said to attend their new system of government. Besides this class, which embraces all the large fortune-holders, there are about two hundred families, constituting the middle class, in the tribe. This class is composed of the Indians of *mixed* blood, and *white* men, with Indian families. All of them have some popularity, and may be said to live in *some* degree of comfort. The committee are not aware that a *single* Indian of *unmixed* blood belongs to these two *higher* classes of Cherokees. The third class of the free population is composed of Indians, properly so denominated, who, like their brethren of the red race *every where else*, exhibit the same characteristic traits of *unconquerable indolence, improvidence*, and an *inordinate love of ardent spirits.* They are the tenants of the wretched huts and villages in the recesses of the mountains, and elsewhere, remote from the highways, and the neighbourhood of the wealthy and prosperous. It will be almost incredible to those who have formed their opinions of the condition of the Cherokees from the inflated general accounts found in the public journals of the day, when it is stated, that this class constitutes, perhaps, *nineteen out of twenty* of the whole number of souls in the Cherokee country.'

"Although not explicitly so stated, it is palpably the opinion of the committee, that the Indians *cannot be civilized*; but that the effort to that effect will extinguish them."

An argument, though not a new one, in favour of the benevolent scheme of African colonization, is furnished by Dr Caldwell. When speaking of each race inhabiting its particular region, where it best flourishes, he says,

"But tropical Africa is the native climate of the negro race, where they enjoy most health, live to the greatest age, and attain the highest perfection of their nature. It is as really their home, as the arctic circle is of the polar bear. As it evidently comported, then, with the scheme of the population of the earth, that tropical Africa should be inhabited by human beings, aptitude called for the negro race, as the best suited, if not alone suited, to the climate and situation of that portion of the globe. But how was that race to be brought into existence? Was it to be done originally, by a creative act, and in a short time, at an early period of the world? Or slowly, and at a much later period, by a gradual change of another race? Which process accords best with the beneficence of the Deity, and his general procedure in stocking the earth with animals? To us the question seems easily solved. The former method is in every respect preferable.

"A negro race created originally and planted in Africa, would enjoy at once the privileges and favours conferred by their Creator on other beings. No painful and lingering change in their constitution would be necessary to fit them for their place of residence. They would be healthy and happy, vigorous and fruitful from the beginning, and the country would soon be peopled by their descendants. No degeneracy would occur in the race, on account of a want of adaptation to the climate. The aptitude which prevails in all other parts of creation would prevail also here."

In concluding our notice, at this time, of the "Thoughts on the Original Unity of the Human Race," we are sure that our readers, after having perused the numerous passages which we have introduced from the work, will join us in opinion, that the ingenious author has acquitted himself of his task with equal ability and good taste. The uncommon interest of the subject has not been in aught diminished in his hands, and we are justified in expressing our hopes, both for the sake of philosophical physiology and the advancement of medical literature, that the present critical commentaries of Dr Caldwell on the learned work of Dr Pritchard, is but the *avant coureur* of a fuller and more complete exposition of the whole subject, including many interesting facts and literary disquisitions, which, though analogical, cannot but enliven the narrative, and give additional point to the argument.

The present essay having been printed at a distance from the author's residence, he was not able to superintend it in its progress through the press; and of course he must be held clear of blame for sundry little inaccuracies of typography and expression, which the reader will easily detect.

ART. XVI.—THE EPIDEMIC CHOLERA.

Die asiatische Cholera in Russland in den Jahren 1829 *und* 1830. *Nach russischen amtlichen Quellen bearbeitet, von* J. R. LICHTENSÆDT, *Doctor und Professor. Berlin,* 1831. 8*vo. pp.* 218.

Uber die Cholera, die im letzten Herbste und Winter in und um Orenburg herrschte, von DR RANG, *Russisch-Kaiserl-Staatsrath und Ritter, mitglied der medicinal-Behörde in Tambow. Berlin, Aug.* 1830. 12*mo. pp.* 170.

History of the Epidemic Spasmodic Cholera of Russia, including a copious account of the disease which has prevailed in India, and which has travelled under that name from Asia into Europe. Illustrated by numerous official and other documents explanatory of the nature, treatment, and prevention of the malady. By BISSET HAWKINS, M.D., *Fellow of the Royal College of Physicians, Professor of Materia Medica and Therapeutics in King's College, and Physician to the Westminster General Dispensary. London,* 1831. 8*vo. pp.* 306.

Fourteen years ago the epidemic cholera first made its appearance in India; since then it has continued to prevail, with but short intermissions, up to the present period. By successive but rapid strides, it extended itself from the banks of the Ganges, where it arose, over the greater part of the eastern world, and has finally penetrated into Europe, the north eastern portions of which are now suffering from its ravages. The fearful and rapid extension of the disease, as well as the mortality with which it is attended, render it a subject of deep interest to every one, but especially to the members of the medical profession. Disregarding those laws by which the rise and progress of epidemical diseases have been supposed to be governed, unimpeded in its course by mountains or seas, and prevailing alike in all climates and seasons of the year, and amid every vicissitude of weather, to determine the period of its final cessation, and the countries which may be considered safe from its visitation is impossible;—human foresight fails in its attempts to ascertain either of these points. The epidemic has already travelled over a portion of the earth's surface equal to upwards of *seventy* degrees of latitude, and *one hundred* of longitude, and it may, for aught we can see to the contrary, include, in its future progress, the remainder of the globe. There is no country the inhabitants of which can consider themselves placed beyond its reach; even the broad expanse of the Atlantic cannot be considered a certain barrier to its ingress, sooner or later, into the United States. To become acquainted with the history of this appalling malady, therefore, and to investigate its nature and its causes, must be the desire of every physician, even of this country, whether considered as subjects merely of rational curiosity, or, in anticipation of its appearance amongst us, to enable them to devise, in advance, the best means for its prevention or its cure.

So far as regards the disease during its prevalence in India, the various official reports of the surgeons attached to the different divisions of the British army in that country, supply us with ample details, while from the official documents collected by Professor Lichtenstædt, though less complete in many particulars than the former, we become acquainted with the facts in relation to the cholera as it appeared in Europe. Of the identity of the disease in the two countries there can exist no doubt,—on this point the documents in our possession furnish the most conclusive evidence.

Availing ourselves of the documents here indicated, as well as of the works of Drs Rang and Hawkins, and the communications made to the Royal Academy of Medicine at Paris, we proceed to lay before our readers a brief sketch of the history, character, and the causes, so far as they have been ascertained, of this appalling epidemic.

To the commencement of the disease in India we have already alluded; this occurred during the summer of 1817, when various parts of the Delta formed by the river Ganges, experienced for the first time its ravages. In the ensuing year the epidemic had extended as far north as Saharunpore, high up on the Jumna, and to Cape Comorin on the south; its westernmost limit being at Bombay and Surat, its easternmost at Sylhet. Moving towards the interior from the mouth of the Ganges, it spread itself over a space including four hundred and fifty square miles. In 1819 it attacked the isles of France and Bourbon, in twenty-one degrees of south latitude. In the first of these islands it appeared in the autumn: the number destroyed by the disease is estimated by one authority at 20,000, and by another, the governor's official report, at 7000; the latter is probably the most correct. In the island of Bourbon the disease begun early in December. Of two hundred and fifty-seven persons seized with it, one hundred and seventy-eight died. Pursuing its route to the south and east, the epidemic invaded, also, the Indio-Chinese peninsula. In 1820 it ravaged Siam, Malacca, the Philippine Islands, the southern provinces of China, and Guzzerat in India. In the town of Bankok of Siam, alone, 40,000 are said to have fallen victims to the disease. In 1821 it is reported to have destroyed 60,000 subjects of the prince of Oman, around Muscat; and in the island of Java 102,000 individuals; of these deaths 17,000 are referred to the city of Batavia. During this year the disease reached Bahrein, Bassora, Bagdad, Bushire, and Shiraz. In this latter city, the population of which is 40,000, there died 16,000 within the first few days. In Bassora 18,000 individuals perished, of whom 14,000 died in two weeks. During the succeeding winter the disease became dormant in both Persia and Syria. In 1822 it spread to Ispahan, Teheran, Tabriz, Moussul, and Diarbekir, visiting Bagdad and Aleppo; and it reached, in 1823, the island of Amboyna, in one hundred and twenty-seven degrees of east longitude, extending, also, to Antioch, in longitude thirty-six degrees, and to Astrakan, in Asiatic Russia, in latitude forty-six degrees north. Thus it spread, in seven years, over ninety-one degrees of longitude, from Antioch to Amboyna, and sixty-seven degrees of latitude; from the isle of Bourbon to Astrakan—destroying in its course not less than 6,000,000 of human beings.

The disease is generally understood to have broken out first at Jessore, a city eighty or ninety miles northeast from Calcutta, in the middle of August 1817; it appears, however, to have prevailed to a considerable extent in the district of Nuddea, west of the Hoogly, as early as May and June. In July it appeared also at Patna, near three hundred miles directly northeast of Calcutta. By the middle of August, at Calcutta, at Dacca, and Dinapore; on the 17th at Sylhet and Jessore; by the end of August, at Boglipoor and Monghyr; September 15th, at Balasore; 17th, at Buxar; 18th, at Chupra and Ghazeepoor; and, by the end of November, at Rewah and Cuttack, the two last places being separated by at least four hundred miles. The causes producing the disease appear to have been in a languishing or quiescent state during the winter of 1817; but in the months of April and May 1818, they were manifested again with extreme violence, not only in many of the places where the disease had already appeared, but also at Ougein, Hooshungabad, Nagpore, with numerous intervening districts, and at Ganjam; all these being nearly on a line of six hundred and forty miles, from northwest to southeast. In various other places on a line north and south, of six hundred miles, from Goruchpore to Visgapatam, the disease was also prevalent during the same period of the year 1818. At Bombay it arrived in August, at Madras in October, and at Ceylon in December. During this year the disease appeared in its most malignant form at Benares, where, in two months, fifteen thousand perished. At Allahabad, also, forty or fifty died daily, and in the district of Goruckpore thirty thousand were carried off in a month. Between the 6th and 7th of November, the epidemic had reached the grand army of India, which, on the approach of the Pindarree war, had been concentrated at Jubbulpore, Mundellah, and Sauger, under the command of the Marquis Hastings. It consisted of ten thousand troops and eighty thousand followers. The disease for the first few days was confined to the lower classes of the camp followers, but finally overspreading the entire camp, it proved more fatal to the different divisions of the army, than could the shot of the enemy in a well-contested field. In twelve days, nearly nine thousand men were destroyed. In this emergency, it was fortunately determined by the commander-in-chief to try the effects of a change of location. The centre division accordingly moved in a southeasterly direction, taking up its station on the high grounds at Erich. In a short period, the Marquis was enabled to transmit a despatch to government, intimating that, having marched fifty miles, he had at last fixed upon a dry and elevated soil, where the pestilence rapidly declined.

Cochin-China and Tonquin were visited by the cholera in 1820. In December of this year it entered China, beginning its ravages at Canton. Pekin admitted the enemy in 1821, and during that and the following year the mortality occasioned by it was so extensive, that coffins and other funeral requisites were necessarily furnished at the expense of the public treasury, for the interment of the poorer classes. Numbers of people, engaged in the pursuits of business or pleasure, riding or walking, were seen to fall down in the streets, exhausted by the sudden impression of the disease, which consigned them in a few hours to their graves. In many instances, the disease caused instantaneous death. Mr Gordon relates many cases of this kind. At Bellary, in India, a tailor was attacked by the cholera and instantly expired, with his work in his hands, and in the very attitude in which he was sitting.

The rapidity with which the progress of the Indian cholera was marked, may be judged of, from the following statements. In less than a month it spread from Jessore to Calcutta, a distance of nearly 100 miles. From Jessore it reached Bombay, a distance of about 1100 miles in twelve months, travelling at the rate of about three miles per day! It went from Allahabad to Etawah, at the rate of five miles a day; from Etawah to Agra, at the rate of about two miles. In its course across the Deccan, it advanced, in many instances, at the rate of from fifteen to eighteen miles a day. The pestilence did not spread itself at once over a large extent of country, but attacked different places in succession, travelling, as it were, by a chain of posts, and attacking a second district or town, after it had ravaged and often ceased, in a first.

In the above rapid sketch we have traced the progress of the cholera from its origin in 1817 at Jessore, until its entrance into Astrakan in September 1823. In the latter city its progress appears to have been arrested on the approach of winter in the month of November. Subsequently to the year 1823, the disease pursued its destructive career through China and various parts of India, and towards the close of 1826, after desolating several cities in Mongolia, it reached the frontiers of Siberia. Its further progress in this direction was, however, checked, for a time, by the prevalence of a strong north wind during the ensuing month of February. In Persia, the disease reappeared several times; visiting in October 1829 the city of Teheran, which is the residence of the royal family: with the setting in of cold weather, as had previously been the case, its ravages were here also suspended.

Towards the middle of June 1830, the cholera again broke out in the provinces of Mazanderan and Shirvan, upon the southern shore of the Caspian sea. From thence it passed through the town of Tauris, destroying five thousand of the inhabitants. Crossing the Russian frontier it rapidly advanced towards the interior. In two provinces 4557 persons were seized with the malady, of whom more than a third perished.

On the 8th of August 1830 the cholera entered Tiflis, the population of which was soon diminished from thirty to eight thousand, by death and migration to avoid the disease. On the 20th of July of this year the epidemic had again reached Astrakan. Ten days subsequently 1229 individuals had been attacked, of whom more than a third perished, including the civil governor, and nearly all the officers of the police. The course of the disease was no longer arrested by the approach of winter: in the month of August of the preceding year it first manifested itself in Orenburg, the capital of the Russian province of the same name, and attained its utmost malignity in different parts of the province during December and January, when the cold is the most intense. In the city of Orenburg, with a population of about 11,000, the whole number of persons attacked was 1100, of whom 200 died. In this city and its suburbs the disease had disappeared entirely on the 20th of November, and on the 23d of February 1830, it was extinct throughout the province; in the whole of which it affected 3590 individuals, of whom 865, or nearly a fourth, perished. In February 1830 the epidemic visited also the village of Massina: the number of sufferers here amounted to 3590, of whom 865 died. In many districts it prevailed with unabated vigour when the temperature was far under zero of Fahrenheit's scale, and in some districts it actually made its first appearance when the thermometer was as low as —29°.

In penetrating into the heart of the Russian empire, from Astrakan, the cholera pursued the course of the Volga, which spreads its navigable waters over the most populous provinces.

At Nischnei-Novogorod, a city about 260 miles northeast of Moscow, the disease made its appearance about the end of August 1830. By the 19th of October 1863 persons had been affected by it, of whom 968 died. On the 6th of September it manifested itself at Yaroslaff, high up on the Volga.

At Moscow the cholera made its appearance between the 24th and 27th of September in a number of sporadic cases; it increased, however, with great rapidity, so that by the 26th of November the number attacked by it was 1066, and on that day 244 more cases were added to the list. On the 17th of November, according to the official statements, the total number affected with the disease up to that date was 6531, of whom 3508 perished. The labouring classes had been mostly removed to their villages, and many of the nobility left the city entirely, so that the population, which is estimated at 250,000, was considerably reduced. According to Dr Loder, physician to the emperor of Russia, the entire number of cases which had occurred in Moscow, up to February of the present year, was 8130; of these 4385 terminated fatally. By the 1st of January 1831 the disease had greatly declined in the capital, while it still continued to prevail among the troops destined to the reduction of Poland, and over various extensive provinces of the empire.

On the 10th of April 1831 the disease showed itself amongst the wounded and prisoners who, after the battle at Iganie, were conducted to Praga, a suburb of Warsaw, separated from the city by the Vistula. The same day it appeared in the Polish army, and on the 14th it was prevalent in the capital. At Dantzic, in Prussia, the disease manifested itself in May, and on the 25th of the same month at Riga. The total number of cases in the latter city, up to the 23d of June, was 3200, of which 1480 terminated in death. In Dantzic 288 deaths occurred up to the 25th of June, of whom only fifty-three were females. At Liebau, which is one of the most northernmost points to which the cholera has extended, the disease made its appearance in May 1831 and ceased by the 18th of June. By the 26th of June the epidemic had spread to St Petersburg, between which time and the 11th of July 3076 individuals were attacked, of whom 1311 died. By the 1st of July it was at Cronstadt and Archangel; in the latter place out of 1200 cases of the disease there occurred 800 deaths.

In the above sketch we have merely indicated some of the more prominent points to which the disease has advanced in its progress over the north of Europe; the principal towns and villages from Dantzic to Odessa and from Odessa to the White Sea, have in fact experienced, more or less, its ravages. What may be the extent or direction of its future course, time alone can determine. An advance of but eight hundred miles more in the direction it has hitherto pursued, would bring it very nearly to the gates of Paris.*

In its progress through Russia and Poland the disease has travelled with the same rapidity it exhibited in the east; its ordinary rate being six, seven, eight and ten miles per diem. From Reschd in the Persian province of Ghilan, to Tiflis, the capital of Georgia, a distance of 400 miles, it passed in two months. Its passage from Baku, along the Caspian Sea, to Astrachan, a distance of 350 miles, occupied but nineteen days, and from Nischnei-Novogorod to Moscow, a distance of 260 miles, it spread in less than thirty days.

Of the *symptoms* of the cholera as it occurred in the north of Europe, our readers will be able to judge from the following very interesting summary transmitted to the English government by Sir William Crichton, physician to the Russian emperor at St Petersburg.

"The disease was marked by general uneasiness,—violent headach and giddiness,—great languor—oppression in the chest,—pain at the pit of the stomach and sides,—a very weak pulse and frequent vomiting, first of undigested food, and then of a watery fluid mixed with phlegm,—frequent purging,—severe pains,—cessation or very scanty secretion of urine,—excessive thirst,—cramps in the legs, beginning at the toes, and by degrees reaching the body,—voice feeble and hoarse,—eyes dull and sunk in the head,—the features changed and like those of a corpse,—coldness, contraction, and bluish tinge of the extremities,—coldness over the whole body, the lips and tongue becoming blue,—cold and clammy perspiration.† The vomiting and purging soon exhaust the patient,—the spasms become greater, attacking the most vital parts,—the pulse ceases, —the beating of the heart becomes scarcely sensible,—and the patient, after suffering the most horrid martyrdom, dies quietly, having a few moments of ease just before his end. The duration of the malady is generally from twenty-four to twenty-eight hours, but sometimes its course is still more rapid."

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* For the foregoing condensed history of the progress of the epidemic we are in a great measure indebted to two essays which appeared in the Journal of Health, vol. iii. pp. 16 and 21. From an article in the same work we have borrowed freely also in our account of the causes of the disease. In both instances, to insure correctness, the original documents have been carefully consulted.

† According to Dr Keir of Moscow, the thermometer placed under the tongue, during two minutes, sunk, in one case of cholera, to 77 degrees, and in another to 88 degrees of Fahrenheit.

The detail of symptoms presented in the circular distributed by the Austrian government, indeed all the accounts which have been published, agree with the above. The elaborate epitome of the disease transmitted by Dr Keir, of Moscow, to the British government, coincides with it, as also do the symptoms of a case detailed by Dr Sokolov, of Orenburg, in the work of professor Lichtenstædt. It is needless to dwell on this topic, with the view of proving the identity of the symptoms with those remarked by English practitioners in the cholera of the East Indies. All the Russian reports unite in showing that in the generality of cases there were the same excessive evacuations upwards and downwards of a watery, turbid fluid, the same collapse of the skin, coldness of the surface, sinking of the pulse, failure of the strength, lividity of the face, spasms of the muscles, sense of pain, or pressure in the region of the splanchnic plexus of nerves, extreme despondency, entireness of the mental faculties, and blackness and inspissation of the venous blood; that in Russia as in India some instances occurred of rapid death, with collapse and spasms, and without vomiting or purging; that in other instances chronic irritation of the bowels continued for a long time after the violence of the disease was broken; and that sometimes, too, symptoms of cerebral congestion supervened on the violent constitutional disorder which accompanied the intestinal symptoms, and quickly terminated in coma and death, when not properly counteracted.*

Little has been added by the physicians of Russia to our knowledge of the pathological anatomy of cholera, beyond that for which we are indebted to the investigations of the English surgeons in India. The descriptions of the morbid appearances in the bodies of those who have died of the disease, presented by the former, though few in number and imperfect in details, coincide very nearly with those met with in the autopsical examinations of the latter. The following, according to Dr Keir, are the appearances after death, observed at Moscow.

" The extremities in general were more or less livid and contracted, and the skin of the hands and feet corrugated; the features shrunk and ghastly. On opening the scull, the blood vessels of the brain and its membranes were more or less tinged with blood, particularly towards the base. The arachnoidea had sometimes in several places lost its transparency, and adhered to the pia mater. A fluid was sometimes found effused into the convolutions of the brain in some quantity, and more or less serum in the lateral ventricles. The blood vessels of the vertebral column and spinal chord were more or less loaded with blood, which was sometimes effused between its arachnoid and dura mater; partial softening of the substance of the spinal chord was sometimes met with, and marks of inflammatory congestion in the larger nerves. The lungs were generally gorged with dark coloured blood; the cavities of the heart were filled with the same, and frequently contained polypous concretions. In all the dissections I was present at, very dark coloured blood, which, when extended on a white surface, resembled the colour of the darkest cherry, was found in the arch of the aorta, and in other arteries. The state of the abdominal organs varied considerably; the stomach, and different parts of the intestines were frequently found to be partially but considerably contracted; the internal surface of the stomach sometimes seemed to be little affected; a whitish or yellow fluid matter, resembling the evacuations, was frequently found in different parts of the alimentary canal, which, now and then, contained a good deal of air; in other cases both stomach and intestines bore marks of congestion, and a sub-inflammatory state, varying from dark coloured spots of small extent to several inches, affecting the whole internal circumference: the colour of these parts also varied a good deal from dark coloured venous congestion to light rose coloured inflammation. In one case, the internal surface of the stomach was so strongly and so generally tinged of a very dark colour, that it might easily have been mistaken for gangrene. On exposing the stomach between the eye and the light, it was evident that there was neither gangrene nor solution of continuity, but that the dark colour proceeded from a very general and great congestion of very dark coloured blood in the vessels of the organ. The subject of this case, I was told, had died with symptoms of a typhoid nature, after suffering from the usual symptoms of the epidemic. Excepting in this case, which was evidently one of congestion and not of inflammation, I saw nothing in the morbid appearances from which a conclusion could be drawn that inflammation was a very general morbid change in the alimentary canal, or a common cause of death, however by its presence in the second period of the disease it might add to the general irritation, or even, as a consequence of preceding congestion, be itself, occasionally, the cause of the fatal event. Both stomach and bowels were frequently of a paler colour than natural, both on the outer and inner surface; but neither thickening nor condensation from inflammation, nor exulceration, destruction of substance, nor abscess, appeared in any of the dissections at which I was present. The liver was generally pretty full of dark coloured blood; the gall bladder frequently much distended with tenacious, ropy bile, of a dark yellow or green colour; the gall ducts were sometimes contracted, at other times not; the appearance of the pancreas, spleen, and kidneys, was various, frequently differing little from their natural state, and in other cases, rather surcharged with blood; the urinary bladder almost always collapsed and empty; the uterus generally healthy."

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* See Ed. Med. and Surg. Journal, Vol. XXXVI. page 123.

To enable the reader to judge of the identity of the Russian cholera with that of India, we subjoin the following account of the morbid appearances after death in the latter, condensed from the very able report drawn up by Mr Scott for the Madras Medical Board; a document which few in this country have had an opportunity of consulting.

The external appearance of European subjects, who have died of cholera, closely resembles that which they exhibited whilst labouring under the disease. The surface is livid, the solids shrunk, the skin of the hands and feet corrugated. There exists no uncommon tendency in the body to putrefaction, nor any characteristic fetor from the abdominal cavity. The cavities of the body lined with serous membranes, as well as these membranes themselves, presented no particular morbid appearances. The cavities indicated have almost uniformly been found in a natural state, or the deviations from that state have manifestly had no connexion with cholera. The surfaces, which are lined or covered with mucous membranes, on the contrary, very generally exhibited signs of disease.

The lungs have not unfrequently been found in a natural state, even in cases where much oppression of respiration had existed previously to death. Much more generally, however, they were found either to be gorged with dark blood, so that they have lost their characteristic appearance, assuming more that of liver or spleen; or they were in an opposite condition,—that is, collapsed into an extremely small bulk, and lying in the hollow on each side the spine, leaving the cavity of the thorax nearly empty. This has been supposed to have arisen from the extrication of a gas, but on piercing the thorax of the dead body under water, no gas escaped. The blood found in the lungs has been always very black. The heart and its larger vessels were found to be distended with blood, but not so generally as the apparent feebleness of their propelling power, and the evident retreat of the blood to the centre, would have led us to expect. The engorgement of the right cavities of the heart with blood is not peculiar to cholera, but in some cases the left cavities were found filled even with dark or black blood, which we may consider a morbid appearance more peculiar to this disease.

In the abdominal cavity, the peritoneal coverings of the viscera presented seldom any morbid appearances; the morbid accumulation of blood in the vessels of the viscera, imparting to them, however, an appearance of turgidity and blueness, occasionally evident on their exterior surface. Where the patient has lingered long before death, this membrane occasionally exhibits traces of inflammation. In other cases the whole intestinal tube exhibited a blanched appearance both externally and internally. The stomach and intestines generally preserved their ordinary size. The omentum was not sensibly affected. So various were the morbid changes in the stomach, that upon them no pathological conclusions could be founded. The organ was rarely found empty or much contracted, nor was any appearance of spasmodic stricture of the pylorus often detected. It did, however, sometimes occur. The contents of the stomach appeared to be chiefly the ingesta in an altered state; in some cases a greenish, yellow, or turbid matter was found. Various appearances, either of active inflammation, or a congested state of the vessels, were noticed, sometimes in one part, and sometimes in another, of the organ. The parts seemed as if they were sphacelated, thickened, softened, and friable,—and, in short, *exhibited so great* a variety of appearances, from a perfectly natural state to the most morbid condition, that no particular light is shed by them on the nature of the disease.

The intestinal tube was sometimes collapsed, but oftener more or less filled with gas; distended in some parts in bags, or pouches, containing whitish, turbid, dark, or green coloured fluid; and in others presenting the appearance of spastic constriction. The latter, however, was not common. The intestines contained no fecal or other solid matters, but very commonly large quantities of a *conjee* looking fluid, or of turbid, serous matter. The duodenum, and occasionally the jejunum, were found loaded with an adherent whitish or greenish mucus,—at other times they were found, as it were, denuded of their natural mucus, and often they were perfectly healthy. Traces of bile in the intestines, or of any substances apparently descended from the stomach, were exceedingly rare. Sanguineous congestion, and even active inflammation, are stated to have been more common in the bowels than in the stomach; but on the other hand instances were very numerous where no such indications were detected. The thoracic duct is stated to have been found empty of chyle. The liver was commonly gorged with blood, but not always; the gall bladder was almost universally found to contain bile, and in the great majority of cases even completely filled with it. As is usual with this secretion in cases of retention, it was of a dark colour. Very different states of the gall ducts have been described: cases of constriction and impermeability seeming to be equally numerous with those of an opposite character. The urinary bladder was found, we may say universally, without urine, and very much contracted. The mucous membrane of the bladder and uterus have been found coated with a whitish mucous fluid. In the spleen nothing unusual was detected. The vessels of the mesentery were very generally found to be loaded with blood.

In the head, appearances of congestion, and even of extravasation, were frequently observed; but not so uniformly, nor to such an extent, as to require any particular notice. Only one case has been given, where the state of the spinal marrow was examined; and in that, indications of great inflammation were detected in its sheath; the case, however, was in some degree a mixed one.

An all important question in relation to the disease under consideration, is to what cause or set of causes are we to refer its production? When we consider the extensive and rapid spread of the cholera, independent in many instances of the direction of the wind; its prevalence in climates the most dissimilar from each other, whether from dryness or moisture, heat or cold; at every season of the year, and amid every variety of weather: it is evident that the ordinary causes of disease, whatever influence they may exert upon its progress and malignity, afford us no satisfactory explanation of its origin.* The production of wide spreading epidemics of every species is, in truth, a problem difficult, if not incapable of solution. To some peculiar morbid condition of the atmosphere they are doubtless all to be referred—the exact nature of which, however, has heretofore, and possibly ever will, escape our strictest scrutiny.

That the production of cholera, at least, is referrible to some morbid property residing in the air we breathe, is rendered almost certain, by the peculiar character of the disease. In no other manner can we explain its sudden appearance in the midst of an extensive population, the greater part of which become at once its subjects. In Mr Jameson's Bengal report, it is stated, that two million persons had assembled to celebrate a religious festival on the shores of the Ganges; the cholera suddenly broke out amongst them, while at their devotions, and in eight days destroyed twenty thousand persons! The pestilence was stayed, however, so soon as the multitude dispersed; it did not extend even to a village only seven miles distant. In one week the greater part of the troops under the command of the Marquis of Hastings were attacked with the disease, and in twelve days nearly nine thousand individuals fell victims to it. In Bassora, the number of persons attacked by the cholera, almost simultaneously, may be judged of from the fact, that in fourteen days the deaths in that city amounted to fourteen thousand. At St Petersburgh, in Russia, the disease appeared on the 26th of June, and in the fifteen days between that and the 11th of July, at least 3076 of the inhabitants were attacked.

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* "Elevation above the plane where the cholera prevailed (in Russia) did not constitute any protection. In the East Indies it was, we believe, invariably observed, that cholera did not proceed up the mountains. In the government of Orenburg, on the other hand, instances occurred of villages being attacked, though situated at a height of one thousand four hundred feet above the surrounding plain."—*Hawkins, p.* 114.

Some of the phenomena, remarks an intelligent writer, observed in the cholera of the east, seem to indicate that the causes operated as a poisonous cloud (if we may suppose such a thing) would have done. The poisonous effect has often been as sudden as we can conceive. Men in perfect health arrive at a certain spot, and fall down by dozens; some never to rise again, and others to escape barely with life, after excessive pain and torture. Cases are also related of large bodies of men entering in such a stratum of poisonous air, as at Nagpoor, for instance, and also, the troops which suffered so terribly on a march from Ganjam through the northern Circars. In other cases, the pestilential cloud seems to have been wafted into the midst of a stationary assemblage, as the camp of the Marquis of Hastings, on the banks of the Sinde; the disease, in this latter instance, rapidly abated after the removal of the encampment from the infected district to the high grounds at Erich.

In evidence of the fact that the cause of cholera was often of such an extent as to be explicable only upon the supposition that it was connected with a morbid constitution of the atmosphere, the statement of Dr Onufriev, physician for the circle of Orenburg, may be cited. "During the prevalence of the epidemic," he observes, "there was *scarcely a single inhabitant* of the city of Orenburg, who had not some symptoms of disordered digestion. One complained of oppression and pain in the breast; another of pain in the head, some nausea, diarrhœa, and the like. To me it appears that the cause of these symptoms was a general invasion of the systems of the inhabitants by cholera, which, however, was prevented from developing itself in its perfect form, by a regular manner of living, and other similar means. This may be considered as proved by the *almost universal* prevalence of symptoms of disturbed digestion, their originating without any appreciable cause, especially in persons newly arrived in the city, and their being removed by the usual treatment."*

The cessation of the cholera, was equally sudden with its invasion. This was particularly the case in India, where after prevailing for a time in one place, the disease, as it were, ceased at once its ravages, to make as rapid an attack in another, and often distant quarter. It very rarely remained in much vigour at any one place for more than fifteen or twenty days, and sometimes was exhausted in a much shorter time. Armies have fled from the track of the pestilence, and been safe, out of the limits of that track.

The intemperies of the atmosphere, whatever it may be, to which we have referred the production of cholera, does not appear to depend upon any poisonous exhalation, derived either from the soil, or from the bodies of the sick. This is evident, as well from the wide spread of the disease, its not extending itself from a centre to a circumference, nor following the course of the wind or the sun, nor obeying any other meteorological phenomenon: frequently, indeed, it has been known to pursue its course in the very teeth of the most powerful monsoons. Contagion and miasms, floating in the air, seldom extend more than a few feet beyond the spot from which they derived their source; when wafted to a greater distance, it is always in the direction of the prevailing winds. However much we might be inclined to ascribe the state of the atmosphere producing cholera, to the evolution of terrestial miasms within the tropics, no such miasms can be supposed to have existed during the intense cold of a Siberian winter, and yet, as we have seen, the disease prevailed in Russia in defiance of intense frost. In many places, too, as at Orenburg, which were subjected to the ravages of the cholera, no extensive sources for the production of miasms were present, even if we should suppose a sufficient degree of heat existed to engender them.†

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* Lichtenstædt, p. 90.

† Mr Orton has assigned a change in the *electricity of the atmosphere* as the

Whatever, nevertheless, has a tendency to vitiate the atmosphere of any given neighbourhood, would appear evidently to invite the disease, and to increase the number of its victims. Thus the cholera has prevailed most generally, and to the greatest extent, in the thickly populated cities of the east, where cleanliness and ventilation are but little attended to; and even in these cities, its principal ravages were among the poorer and more debased of the people. A similar statement may be made in reference to the progress of the disease through the north of Europe.

"Every where in Europe," says Hawkins, and in the statement he is fully borne out by the official documents collected by Professor Lichtenstædt, "every where in Europe the lower orders have been the chief sufferers: the number of remarkable persons and of nobility, who have fallen victims, has been extremely small; their names, indeed, might be easily enumerated. When such instances have occurred among the affluent classes, they might probably be explained by particular mental anxiety, or a state of predisposing bad health," or, he might have added, to intemperance, as in the case of Marshal Diebitsch, whose attack, it is stated on good authority, was evidently attributable to this cause. "The soldiers of the conflicting armies in Poland have been amongst the chief sufferers; we may easily imagine the privations to which they have been exposed. At Warsaw, the Committee of Health announced, that very few persons of easy condition have been attacked, and that the disease has expended its chief ravages on the poorer inhabitants of the low and thickly peopled quarter of the city near the Vistula. At Riga, the sailors appear to have been most liable to the disorder."

It is stated on good authority, that during the recent prevalence of the cholera in Calcutta, the dead bodies of the poor were cast into the river Hoogly, while, in addition to this source of noxious exhalations, the streets were in so filthy a condition, that the adjutant crane and jackall, crows, and kites, were permitted to enter the city in vast numbers, to act as scavengers.*

A physician of eminence,† and member of the council to whom the investigation of the nature of the disease, as it occurred in Moscow, was especially entrusted, states that the intensity of the disease

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immediate cause of cholera; he has, also, insisted strongly on *Sol-lunar influence*, in connexion with electricity.

* See Letter of Mr Harvey, Christian Observer.

† Dr Jœhnichin.

was in direct ratio to the dampness of the atmosphere; the epidemic prevailing chiefly among the lower classes, who resided in moist and low situations.* It is notorious, also, that inattention to cleanliness is a characteristic of these very classes. A somewhat similar statement is also made by Dr Rankeen, who attributes the occurrence of the cholera in Bengal, to the conjoint operation of sudden changes of weather, humid soil, and a damp atmosphere, in connexion, more especially, with a diet of rice or other grain, vitiated by the wetness of the season.†

Mr Cormick, an East India surgeon, speaking of the cholera as it appeared at Tabriz, a town in Persia, says, that the disease first began in that part of the city which is most low, filthy, and crowded with poor inhabitants; and advanced from quarter to quarter of it, finishing its ravages in one before it commenced them in another. It was most destructive in the houses which were low, and possessed most inhabitants.

It is said that, four days previous to the occurrence of the cholera at Riga, upwards of fifty cart loads of filthy rags, and almost putrid garments, the clothing of those who had died in the Russian camp, many of them of the very disease in question, were brought into the city, and deposited, with all the filth with which they were imbued, in the public stores.

In proof of the agency of an impure atmosphere in favouring the spread of cholera, it is stated that in Tripoli, a city in Syria which is well ventilated, only thirty-one persons were attacked, out of a population of fifteen thousand. In Russia, also, according to the statements of Dr Reimann of St Petersburgh, the disease was more or less rapid and more or less extensive in its spread, according to the more or less wholesome nature of localities; it has thus been very prevalent and fatal among the Jewish population, who live shut up in small apartments, and in extreme filth.

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* This fact is also distinctly stated, in the official instructions issued by the Austrian government, for the purpose of repelling the approach of the cholera. Dr Darbal also, in his Report to the Academy of Sciences at Paris, states that "the epidemic chiefly raged among the lower classes, in low, damp, and filthy dwellings."

† Dr Tytler also maintains the agency of a deleterious article of food, viz. damaged rice, as the exciting cause of cholera. The agency of improper and indigestible articles of diet, in the production of the disease, is pointed out in the instructions issued by the Russian and Austrian governments; in these, the articles enumerated are, unripe and watery fruits, beer, hydromel, sour soups, mushrooms, cucumbers and melons, salted and spoiled fish, and greasy food generally. The sale of cucumbers and water melons, which were peculiarly abundant in the fall of 1829, was prohibited by the local magistrates of Orenburg, as well as their introduction into the surrounding country. Dr Walker, of St Petersburgh, in his Report to the British Government, observes, that in Austrian Gallicia, he was informed, "a better diet furnished to the lower orders, at the expense of government, appeared to have contributed, as much as any other measure, to prevent the spreading of the disease."

But notwithstanding the remote causes of cholera are, in all probability, connected with a particular constitution, and a vitiated condition of the atmosphere, yet a certain state of the human system, or predisposition to disease, would appear to favour its production. When it made its appearance in a city, all the inhabitants were not equally liable to its attacks, many entirely escaping, notwithstanding their full exposure to its remote causes. It was among the lower classes of the people, the ill fed, ill clothed, those living in low damp houses, huts or cellars, and those, especially, given up to habits of intemperance, and careless of health, who were the first and by far the most numerous victims of the disease. The temperate and prudent most generally escaped, or suffered but a slight attack. To this fact, nearly all the physicians who have had an opportunity of studying the disease, bear testimony. Dr Jœhnichin of Moscow declares that drunkenness, debauchery, bad food, and personal indiscretions, were incontestably its predisposing causes. Dr Rieche informs us, that in China, the disease selected its victims from among such of the people as live in filth and intemperance.* Dr Darbal, a French physician resident at Moscow, who, with Dr Jœhnichin, imagines that the emanations or atmosphere of the sick form a focus of infection, admits, nevertheless, that this atmosphere is dangerous to those only who are predisposed to disease through poverty, misery, drunkenness, debauchery, indigestion, and the effects of cold. A physician of Warsaw states, that the disease spared all those who led regular lives, and resided in healthy situations; whereas they whose constitutions had been broken down by excess and dissipation, were invariably attacked. Out of 100 individuals destroyed by the cholera, it was proved that 90 had been addicted to the abuse of spirituous liquors. The females, who are rarely given to the use of these liquors, very generally escaped.†

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* Mittheilungen über die morgenlandische Breckruhr, 1er Band. Stutgart, 1831.

† In India, females and children were likewise observed to be less liable to the cholera.

The agency of intemperance in predisposing to, and exciting the disease, is shown by the fact, that after the decline of the epidemic at Riga, the occurrence of the Whitsun holidays caused a temporary augmentation of new cases, from the indulgence in intoxicating drinks and other irregularities, incidental to a popular festival.

In India, it was observed that the cholera was more or less prone to occur in individuals, in proportion to their greater or less exposure to nocturnal cold and damp, to great and sudden variations of temperature and to *fatigue*. This is proved, by the fact that in the army the disease attacked especially bodies of troops during or immediately subsequent to their march from one station to another, when they are necessarily exposed to all the causes enumerated.

Of the European officers who fell victims to the epidemic, all, or nearly all, were attacked during a march from station to station. The camp followers, as they are left to shift for themselves, no tents being provided for them, and having seldom the means of protecting themselves by warm clothing from the chills of the night, suffered most of all, next the Seapoys or soldiers, and, last of all, the officers. The almost entire exemption of the *civil* servants of the East India Company from the epidemic is worthy of notice: they are generally resident for several years at the same station, and when they travel, do so without being exposed to the fatigue or discomfort to which the military are subject. Their intercourse with the natives is much greater, however, than that of the rest of the European part of the community.*

The experience of all ages has, in fact, shown that they are the least liable to the attack of epidemic diseases of every variety, who are careful to preserve the resisting powers of their systems in their greatest possible vigour by good wholesome food, the avoidance of fatigue and of exposure to cold and dampness, regular exercise, temperance in all things, a cheerful temper and undaunted spirit. On the other hand, there is no surer way of inviting an attack, than to be calculating the chances of it, and searching after the reputed means of preservation; to brood over its terrors, or watch its approach with anxious and incessant solicitude. To attempt to drown these fears by stimulants or narcotics of any kind; to weaken the system by starvation, or derange it by repletion; are equally subversive of the end for which they are resorted to.

A question of no little importance in reference to the cholera still remains to be considered; namely, whether it is capable of being communicated by contagion. That it may originate independently of a specific virus emanating from the bodies of the sick, is admitted on all hands; but the question as to the possibility of its propagation in this manner, after it has once appeared in the midst of a population, is still a subject of dispute. The principal facts bearing upon this point we shall proceed briefly to review.

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* Report of the 89th Regiment at Quilon in Travancore.

It is well known, that by far the greater number and the best informed of the British medical officers in India, who have witnessed the epidemic, have recorded their decided opinion, that the disease was in no instance contagious or infectious. The facts upon which this opinion is founded they very fully detail. This of itself would lead to a strong presumption that the cholera, after its passage into Europe, preserved a similar character. We find, however, that on this point considerable diversity of opinion prevails. Many deny the contagiousness of the disease *in toto*, while another class would seem to admit that it possessed this property, at least to a certain extent. Some of the Russian physicians who at first denied that it was capable of being propagated by contagion, subsequently admitted it, and an equal number who had believed at first in its contagious character now strenuously support the opposite opinion. The truth is, the facts upon which alone the question of contagion can be settled, have been entirely overlooked, or else investigated imperfectly, by the physicians of northern Europe, and in consequence, their opinions as to the exact character of the disease in this respect sit but loosely upon them, being changed in many instances according as the facts that have fallen under their notice would appear to support one or other side of the question, without any attempt to examine such facts in all their bearings. With a few exceptions our professional brethren of Russia would appear to have studied but little the rules of medical logic.

In evidence of the contagiousness of the cholera, it has been asserted, that strict seclusion on the part of the inhabitants of a city or of any other community, even the members of a single family, will effectually prevent the occurrence of the disease amongst them. A few curious instances of this kind have, we admit, been noticed both in the East Indies and in the north of Europe: but before any positive inference can be drawn from this fact, certain particulars of which we are not informed must be inquired into; namely, whether the circumstances of the individuals thus secluded, especially their habits as it regards temperance in eating and drinking, and cleanliness both personal and domestic, were not such precisely as constitute in a great degree a safeguard against the disease. There is no absolute certainty, also, that these very communities by whom a system of seclusion was resorted to, would have been visited by the disease even had no precautions been taken to avoid it. In its progress, as well in India as in Russia, the cholera has exhibited many strange caprices, often passing over at first places lying directly in its route, and perfectly open to its attack, but, after some time, retracing, as it were, its steps, it has prevailed in these very places, without extending to the others in their immediate neighbourhood. In a city it has been known to avoid, so to speak, a particular street or block of buildings, while all around experienced its ravages. At the Russian village of Tschernoretschinsk the disease made its appearance on the 19th of January, after having passed by this place four months previously in its progress to the west. In all the towns and villages within a moderate distance, except one, the disease had entirely disappeared before the end of November preceding, while at the only village where it continued longer, at a distance of twenty miles, it had ceased by the 8th of December, more than five weeks previously. From all the circumstances connected with the occurrence of the cholera in this village, so long after it had ceased in the neighbouring country, there is not the slightest reason for suspecting that it was introduced by communication with infected individuals; and as to communication with infected goods, from the commencement of the disease in the Orenburg government, no one was able, in any instance, to trace it to this source.*

So many instances have occurred of entire exemption from the disease of an extensive population, whose full exposure to the supposed contagion cannot be called in question, and, on the other hand, so many examples of the strictest quarantine being ineffectual in preventing the entrance and spread of the disease, that the occasional immunity of certain secluded districts and individuals, cannot with any propriety be adduced as certain evidence of the contagious nature of the cholera; their escape from it had evidently very little connexion with the mere circumstance of their being shut up from intercourse with the sick. The governor of the Isle of Bourbon, when informed of the occurrence of the epidemic in the neighbouring island,

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* Lichtenstædt, p. 125.

Mauritius, took immediately every precaution to cut off the communication, but, in defiance of the most rigorous quarantine, the disease made its appearance amongst the inhabitants of the isle.* At Orenburg, also, the disease made its appearance, notwithstanding the enforcement of a fourteen days quarantine. It has been said, we are aware, in reference to this latter fact, that the period of fourteen days was insufficient for the development of the disease in those who had been exposed to the contagion, an assertion more easily made than proved. All the facts hitherto collected in favour of the contagious nature of cholera show, evidently, that if contagious at all, the period during which the contagion remains latent in the body is very short; seldom, if ever, could it exceed a few days. In all the cases where the disease occurred soon after the sickening of persons recently arrived from an infected district, it appeared among the residents in less than a week.

In proof of the inefficacy of seclusion from intercourse with the sick in preventing the occurrence of cholera, a fact stated by Dr Cormick may be cited. During the prevalence of the epidemic at Tabriz, a city in Persia, 10,000 or 12,000 of the royal troops passed the city. They were prevented by guards stationed at the gates from entering it, but several of them passed the day under the walls. During the next day, however, the disease manifested itself among them, and they suffered from it very severely. The occurrence of the disease in this case can be readily accounted for upon the supposition of an aërial cause, but not upon that of contagion.

The strictly epidemic character of the cholera is evinced in its occurrence on board of ships at sea, that had not touched at any place where it was prevalent. Troops, also, were attacked on a march through an open country,† and officers in their boats on the Ganges, far from any source of contagion.

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* Dr Kinnis's Report, Hawkins, 265. The contagionists assert that the disease was introduced into this island by the clandestine disembarkment of some negro slaves. Upon what authority this fact is predicated, we know not.

† A striking instance of this kind is related in the report of the eighty-ninth regiment at Quilon. The first battalion, fifth regiment of the native infantry, of about 1000 strong, marched from Quilon for Bangalore. The families of the Seapoys and camp followers of every description amounted to about 4000, making, in all, a body of 5000. The cholera had disappeared at Quilon some considerable time before the march of these troops, and no case of it had occurred among them for a much longer period. On the morning they left the city one Seapoy was attacked, and two or three more daily for the following ten or twelve

Mr Cormick notices a curious fact, which goes far to disprove the idea of the disease being propagated by the mere admission into a place of those labouring under it. The persons composing the family of the Persian prince quitted the city of Tabriz after the violence of the epidemic had already begun to abate. They, however, carried the cholera along with them, and continued to be attacked from four to six a day, for about ten days, but *not a single person of the villages through which they passed, or where they slept, took the disease.* We find, also, that the dispersion of collected masses of people, a large part of whom were labouring under the disease, as in the case of the religious assemblage on the banks of the Ganges, or their removal to a dry, elevated, and more healthy situation, as in the instance of the Marquis Hasting's army, so far from spreading the disease, by forming so many foci of contagion, was sufficient to prevent its further spread even among themselves.

During the epidemic, Dr Albers informs us,* it is certain that about 40,000 inhabitants quitted Moscow, of whom a large number never performed quarantine; and notwithstanding this fact, *no case is on record of the cholera being transferred from Moscow to other places;* and it is equally certain, that in *no situation* appointed for quarantine *has any case of the disease occurred.*

The introduction of the cholera from a foreign source, though boldly asserted in reference to several of the Indian and Russian provinces, by the advocates of contagion, has not in a single instance been satisfactorily proven. On the contrary, all the facts which have been collected are in favour of the opposite opinion. Thus into the Isle of France it is said to have been imported by the Topaze frigate, which arrived from Ceylon on the 29th of October 1829, but it appears from the report of Dr Kinnis, that cases of the disease had occurred in the island on the 5th and 6th of September, although the disease did not prevail extensively until the 18th of November, when it broke out in its most severe form among the

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days. By that time, the battalion had reached the mountains through which they were to pass to their destination; the march became now more fatiguing, and they were often exposed to wet in crossing the mountain streams which at that part of the road very frequently intersected the line of march. The epidemic then began to rage in the most appalling manner, and in the short space of eight days cut off no less than 1100, of which number there were no more than 250 Seapoys. None of the European officers were attacked.

* Report to the Prussian government.

African slaves and Indian convicts. A considerable number of sailors belonging to merchant vessels, lying near the shore, died of the disease, whereas not a soul belonging to the Topaze, which lay about a mile and a half from shore, but communicated constantly with it, was attacked after her arrival. But one patient and no hospital attendant was attacked at head quarters. No children, and a very small proportion of women were affected.

At Ceylon, according to Deputy Inspector Farrell's report, it was found that the disease, on appearing at any one place, attacked *almost at the same instant*, a vast number of persons, who, from their habits, modes of life, and separation of their abodes, could not possibly have communicated it to one another. Dr Solomov informs us, that the cholera first appeared on the frontiers of the Astrakan government on the 3d of July, on board a ship of war, which had arrived from Baku (350 miles down the Caspian), and lay sixty miles from Astrakan. Till the 20th of the month the disease was confined within the Sedlitovski lazaretto, whither the vessel with the sick had been brought. But on that day four people were taken ill in the city; subsequently the disease spread over the *whole* town and destroyed a great number of the inhabitants.* It can scarcely be supposed that the crew of the man of war alluded to contracted the disease at Baku†, while we are presented with no evidence that any intercourse took place between the four individuals simultaneously attacked and the sick at the lazaretto. At Tiflis, the capital of Georgia, where the cholera appeared a short time subsequently to its visit to Astrakan, "the most convincing evidence," says the Report of the Commission of Health, "was received of its not being contagious."

The introduction of the cholera into the Russian province of Orenburg, Moreau de Jonnès has endeavoured to prove was by the caravans which arrive there annually from Kiachta or Boukara, and which are composed of from three to four thousand camels, and as many men. These caravans transport across the steppes of Boukara the merchandize of China, Thibet, Caboul, and Indostan, countries which have been above twelve times the prey of this pestilence. The strictest investigation that could be made, on the part of the Russian physicians, shows the little probability which is attached to such an opinion. From the report of Dr Sokolov we learn that the last caravan which arrived at Orenburg, reached that place on the 22d of July, thirty-five days before the first case of cholera had occurred there; the individuals of which it was composed were all in good health, and in crossing the steppes, which takes from about thirty-three to ninety days, they lost only one companion, of a disease under which he had laboured for twenty days, and certainly, therefore, not cholera. The disease could not, hence, be introduced by any of the persons belonging to the caravan. It is equally certain that its introduction was not owing to the merchandize conveyed by them. At every resting place it is the practice of the merchants to unpack their goods, so that the whole of the caravan must have been freely exposed to the poisonous effluvia, if any existed; nevertheless none were taken ill. The Bukarian merchants, also, to ridicule the suspicions of the Russians, exposed themselves with perfect readiness in every possible way to the exhalations from their bales and packages. Besides, it could not be discovered that any person in Orenburg was attacked by the cholera who had purchased goods of a suspected nature brought by this caravan. When to these facts it is added, that at Orsk and Troitsk, two other frontier towns where the eastern caravans likewise arrived during the summer, cholera did not appear at all, we conceive it is distinctly made out, that importation in this manner was out of the question. The introduction of cholera into Orenburg has, likewise, been ascribed to the Kirghis, who along the whole confines of the province are constantly employed in bartering goods with the people of the latter, during the summer and harvest; but if the Chiwa and Buckarian caravans could not have introduced the disease into Orenburg because actually it was never introduced into Orsk and Troitsk, how was it possible for the Kirghis to introduce it into Orenburg, without, also, introducing it into the numerous stations on the frontiers with which they maintain an equally constant intercourse.*

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* Lichtenstædt.

† The epidemic did not reach Baku until the beginning of July.

At Riga it is stated in the official report of the medical board of that city, that "by the most particular inquiries, it does not appear that the disease has been introduced from without into the city; and from the circumstance of the neighbouring governments of Courtland and the borders of the Duna, to the Minsk government, remaining in a healthy state, as likewise that those who were first attacked, have not been strangers, but inhabitants, who lived in parts of the town distant from each other, and in the suburbs, it appears evident that the sickness has shown itself in this place from unknown causes in the air and surface of the earth." A strict investigation, we are informed, was made into what were called the four first cases which occurred in Moscow, and it was proved that the patients had neither themselves been in any infected place, nor had communication with any one coming from such a place.*

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* Lichtenstædt, p. 121, et seq.

Those who maintain the contagious character of cholera assert that persons who reside in the houses or in the immediate neighbourhood of the sick, are those most liable to be attacked, and among whom the disease first spreads; even admitting this to the fullest extent contended for, it does not prove the contagiousness of the disease. We have seen that the epidemic is influenced in its attacks in a very great degree by the situation in life and the habits of individuals or communities, and, also, by the location of their dwellings in damp, ill ventilated, filthy and otherwise unhealthy situations; hence we may readily suppose that the neighbours, companions and inmates of the sick would be those among whom the disease would be most liable to occur, and that even persons of a different class, as medical men and nurses, who were in the habit of merely frequently visiting the dwellings of the sick, would be more exposed to an attack than others. In India the medical officers of the army were the only Europeans in easy circumstances who had occasion to enter the particular districts where the cholera prevailed; hence we find a greater number of them fell victims to the disease than of the European population generally; nevertheless the whole number of physicians who were attacked was in fact but very trifling. We have the most unquestionable evidence that in hospitals, those in attendance upon the sick did very generally escape the disease, which is as strong a proof as could be offered of its non-contagious character. At Nagpoor, says the Bengal report, the medical staff remained for several days, night and day, in the hospitals, and yet all escaped. In the Hospital of the Royals, says the Madras report, only one individual out of 101 attendants was attacked. In the general hospital in India it is stated, upon the authority of assistant surgeon Whyte, that the friends and relations of the sick who by assisting the patients into and out of the bath, and every other way, were thereby exposed to be attacked by the disease, whether it be conveyed through the medium of an infected atmosphere or by the touch, in no instance were affected; neither were the dooly bearers nor hospital assistants. In Deputy Inspector Farrell's Report at Columbo in Ceylon we have nearly as strong evidence of the non-contagiousness of the disease: he remarks also that it has been known to attack patients admitted into the hospital for other complaints, and to have carried them off with its usual rapidity, and not to appear again in the same hospital, although it raged in all directions around it. The fact of the disease not spreading among the attendants of the sick is confirmed by the official report of the extraordinary committee of physicians assembled at Moscow, by order of the emperor, who add, that "convalescents have continued to wear clothes which they wore during the disease, even furs, without having been purified, and they have never had a relapse. At the opening of bodies of persons who had died of the cholera, to the minute inspection of which four hours a day for nearly a month were devoted, neither those who attended to these dissections, nor any one of the assisting physicians, nor any of the attendants, caught the disease, although, with the exception of the first day, scarcely any precautions were used." In India an individual has been known to be attacked in the midst of a barrack, and carried off in a few hours, while none of his comrades suffered. As this fact of the immunity of those in immediate attendance upon the sick is in our opinion sufficient to overthrow the opinion of the disease being communicable by contagion, we must be permitted to add the strong testimony of Dr Smirnov, staff physician at Orenburg, as recorded by Professor Lichtenstædt. During two months while the disease prevailed at Orenburg, and 299 patients were admitted into the military hospital, the personal attendants on the sick remained entirely exempt from the disease. They consisted of one hospital assistant, six pupils, as many Baschir lads, and fourteen hospital servants, in all twenty-seven; and their duties were to perform bloodletting, apply leeches, poultices and frictions, and to administer baths and the like, so that they were compelled to be constantly breathing the exhalations from the bodies and clothes of the sick, as well as to handle and touch them. The same immunity was enjoyed by certain officers and subalterns who lived in this hospital, were in the sick wards once a day, and at other times were in constant communication with the hospital assistant and pupils. The washerwomen of the hospital likewise escaped, who, it is well known, are extremely apt to suffer from diseases actually contagious.

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* Dr Walker's Report to the British government.

Dr Albers, in his report to the Prussian government, observes that in Moscow there have been cases fully authenticated, where nurses, to quiet timid females labouring under the disease, have shared their beds during the nights, and that they, notwithstanding, have escaped uninjured, in the same manner as physicians in hospitals have, without any bad consequences, made use of the warm water which, but a few moments before, had served as a bath for patients labouring under the cholera.

We have already alluded to the exemption of the civil servants of the East India Company from the disease. But if the disease were contagious, we might expect that Europeans of the class of civilians would have suffered equally, or even in a greater degree than the residue of the European population, inasmuch as their intercourse with the natives was much greater than that of others.

But we have even more conclusive facts than these, in proof of the non-contagiousness of cholera. The official report of the medical committee established by the Emperor at Moscow states, *that* a physician who had received several wounds in dissecting the bodies of those who had fallen victims to the cholera, continued his operations, having merely touched the injured parts with caustic. He did not contract the disease. A drunken invalid, an assistant in the dissections, having also wounded himself, had an abscess, which doubtless showed the pernicious action of the dead flesh, but the cholera did not attack him. Dr Foy, an eminent physician at Warsaw, in a letter to the Royal Academy of Sciences at Paris, states, that he exposed himself in every manner to the infection; he infused into his own veins the blood of an individual who was dying of cholera; inhaled the breath of patients suffering under the disease; and even tasted the matter ejected from their stomachs, without sustaining any injury from the experiment beyond a slight nausea and headach.*

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* Dr Foy imagines that the cholera has its seat in the spinal nervous system, and that all the functions of the skin being impeded, the restoration of these to their natural activity is indispensable to a cure; hence in the Russian soldiers, whose habits are disgustingly filthy, and whose skin was in many instances covered with dirt of more than a line in thickness, the disease generally terminated fatally. Habitual intemperance, disorderly living, and want of cleanliness will generally, Dr Foy informs us, expose to an immediate attack of the disease,

It is scarcely necessary, even would our limits permit, to enter into an examination of the remaining circumstances adduced by the contagionists in favour of their side of the question. Many of them are deficient in those details, a knowledge of which is essential before we can determine their proper bearing; others are as readily explained without the supposition of contagion as by its admission, while a third, and by no means small class, are precisely among those which we should select to prove that the spread of the disease was totally unconnected with a contagious principle. The facts which we have already adduced are fully sufficient, we conceive, to establish the strictly epidemic character of cholera, and its production by causes independent of a poisonous exhalation from the bodies of the sick, or from fomites, in the proper sense of that term.

All the facts connected with the disease which have come to our knowledge, and we believe they are all which have as yet been made public, show that the proper course of our public authorities, in order to prevent the occurrence amongst us of this formidable pestilence, does not consist in the imposition of additional and burthensome quarantine regulations, or a system of non-intercourse with the infected ports. On the contrary, they prove, that the only effectual preventive is, to establish at home an enlightened system of medical police; to take effective measures to ensure the cleanliness and proper ventilation of our cities and their suburbs; to enforce upon every class the importance of temperance, and especially of abstinence from every species of intoxicating drinks; to promote by every means in their power the comforts of the poor; to prevent their exposure to excessive fatigue, to cold and dampness, and to endeavour to supply them with food which is at once cheap, sufficient in quantity, and wholesome in quality; and by all means they should continually endeavour, instead of exciting unnecessary alarm, to tranquillize and strengthen the public mind, and to inspire confidence in all classes of our citizens. So far as these important points are effected, we may rest assured that the danger of the introduction of cholera into our country will be removed.

while the contrary habits will almost invariably be found preservatives.—*Journal of the Royal Institution, Aug.* 1831.

ART. XVII.—MEDICATED INHALATIONS IN CONSUMPTION.

A Dissertation on the Influence of Heat and Humidity, with Practical Observations on the Inhalation of Iodine and Various Vapours in Consumption, Catarrh, Croup, Asthma, and other Diseases. By JAMES MURRAY, M.D. *Member of the Royal College of Surgeons, and Extraordinary Member of the Royal Physical Society of Edinburgh. London,* 1829: *pp.* 305. *With an Appendix.*

Cases Illustrative of the Efficacy of Various Medicines administered by Inhalation in Pulmonary Consumption, in certain morbid states of the Trachea and Bronchial Tubes, attended with distressing cough, and in Asthma. By Sir CHARLES SCUDAMORE, M.D. F.R.S. *&c. London,* 1830: *pp.* 113.

Two Memoirs read before L'Academie Royale des Sciences, at Paris, on the successful Inhalation of Diluted Chlorine in the early stages of Consumption, as a remedy capable of prolonging life, and of alleviating the distressing symptoms in the more advanced stages of that complaint: With cases illustrating the method of administering the gas, and showing its beneficial effects. Translated from the French of M. Ganal, by W. T. C. POTTER, M.R.I. *Operative Chemist. London,* 1830: *pp.* 93.

On Baths and Mineral Waters. By JOHN BELL, M.D. *&c. Chapter VIII. Vapour Baths.*

Our object in placing the title of the last of the works enumerated above at the head of this article, is, that we may be enabled with more readiness to supply an omission in another quarter from which we had been promised a review of the works of Murray, Scudamore and Ganal, on the inhalation of gas and medicated vapours, for the cure of pulmonary diseases, and especially of phthisis.

The prominent facts respecting the new mode of applying iodine and chlorine, with connecting commentaries and critical remarks, have been considered by Dr Bell, towards the conclusion of that chapter of his work which treats of '*Vapour Baths*,' in all their varieties. Some useful hints are also furnished by him in relation to the breathing of common aqueous vapour and the fumes of tar. We shall, therefore, without farther preliminary, avail of the labour of this author, adopting his sentiments and language as our own, for the purpose of placing without delay before our readers a sketch of the merits of the practice of medicated inhalations. We do this the more willingly, as it will be seen that we had not space left for that full analysis of this latter part of Dr Bell's work which we could have desired. So copious indeed are the details on the various subjects of which he treats, that what we borrow on the present occasion is but a portion merely of the chapter on Vapour Baths. Hence, while benefiting our readers, we shall not incur the accusation of impoverishing him.

After giving the division of vapour baths, and detailing their primary effects, and the history of the practice of using them, the author proceeds to notice first the remedial value of simple watery vapour given out from hot springs, and next, of artificial vapour baths, and the numerous maladies in which they have been found serviceable by Clarke, Blegborough, Gibney, Cochran, Marcard, Andria, Assalini, Coxe, &c. Sulphurous fumigations are next spoken of, and the best means of employing them specified, as well as the diseases cured by them, agreeably to the experience of Galés, Assalini, De Carro, Emerson, &c. After this comes a review of the practice to which we propose to restrict ourselves in this article.

The extravagant hopes, says Dr Bell, entertained by Beddoes, and others, of the wonderful effects which were to be produced, by breathing factitious airs, gases in specified quantities, mixed with atmospheric air, have been long since dissipated; and the physician no longer hopes to find in the inhalation of pure oxogen gas, or nitrous oxide, a suitable stimulus to rouse the system from torpor, and to cure disease depending on obstructions, defective secretions, &c., nor in nitrogen or carbonic acid similarly used, a sedative to allay excessive arterial excitement and too abundant hematosis.

Recently the practice of inhaling medicated vapour has acquired some vogue, but we are constrained to admit that although it merits still farther cautious and systematic trials, the result, so far, have not by any means been of that conclusive character which entitle it to our confidence. In this remark we mean to refer more particularly to medicated vapours, by the addition of active chemical agents, rather than to simple aqueous vapour. Of this last I have, remarks Dr Bell, already spoken in terms of eulogy, nor can it be doubted but that it is an agent which might be, and ought to be; still more extensively used than hitherto, in some one stage of nearly all the diseases of the pulmonary apparatus.

The vapour of tar was at one time recommended as peculiarly adapted, by its alleged balsamic powers, to heal ulcers of the lungs. Dr Mudge, on the subject of his inhaler, recommended the fumigations of balsams, and laid especial stress on the virtues of tar; so much as to assert in a strain abundantly extravagant, that much of the benefit which consumptive patients experience from sea voyages is derived from the tar vapour constantly present on board a ship. Its place among the remedies for this disease has been mainly preserved for it by the essay of Sir Alexander Crichton.* Dr Paris (*Pharmacologia*) is inclined to think well of it from the result of a trial of its effects. No details are given to strengthen the faith of the reader. He goes on to say, "The tar employed should be that used in the cordage of ships, to every pound of which half an ounce of sub-carbonate of potass must be added, in order to neutralize the pyroligneous acid generally found mixed with tar; the presence of which will necessarily excite coughing; the tar thus prepared is to be placed in a suitable vessel over a lamp, and to be kept *slowly* boiling in the chamber during the night as well as the day; the vessel, however, ought to be cleaned and replenished every twenty-four hours, otherwise the residuum may be burnt and decomposed, a circumstance which will occasion increased cough and oppression on the chest."

Iodine, of late years so extensively employed in scrofulous affections and morbid mucous discharges, has been very recently recommended to be converted into vapour by a mild heat, and in this state inhaled for the cure of chronic bronchitis and pulmonary consumption. The chief writers in favour of this practice are Drs Murray, Scudamore, and Berton. The first of these seems entitled to the merit of priority of suggestion, as well as of having tested his idea by actual experiment.

"The valuable property," says Dr Murray, "possessed by iodine, of subliming where *moisture is present*, below the temperature of boiling water, and of remaining diffused at low degrees of heat (even that of the atmosphere), when humid, entitles it to attentive consideration as a remedy by inhalation."

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* An Account of some Experiments made with the Vapour of boiling Tar, in the Cure of Pulmonary Consumption.

The apparatus described by Dr Murray for the supply of simple or medicated vapour to be inhaled by the patient is very simple.

It consists first, of a turned iron vessel holding four gallons of water. It may be made larger or smaller according to the dimensions of the apartment and season of the year. This vessel requires to be replenished with water three times in twenty-four hours. Where it is desirable to preserve uniform temperature, boiling water can be used in refilling the vessel. 2. A large stopper for introducing the water: it is furnished with a hook on which a small bag of iodine, hops, or any eligible substance can be suspended in the steam. 3. A wet cloth to be thrown round the pipe, to condense the vapour if it comes over too rapidly. 4. The orifice where the steam escapes: it is best made with a screw, in order to adapt an additional pipe where the bed is distant. The opening is about a quarter of an inch in diameter. 5. A small slide, with hooks, on which a cup of iodine, or any other medicine may be suspended by the jet of hot vapour, if this method be preferred to suspending the substance within the vessel. "Here it may be remarked," says Dr Murray, "that with a moderate fire, and heat of the room at 68°, a thermometer placed three inches from the orifice in the steam arose to 178°; in seven minutes, at six inches distance, to 148°; at nine inches, during seven minutes, to 120°; at one foot, during seven minutes, to 100°; at fourteen inches from the mouth of the pipe, the vapour can be easily inhaled, if requisite."

As intimately connected with the practice of inhaling vapours and showing the philosophy on which it rests, and the means by which, generally, it ought to be carried into effect, the following remarks of Dr Murray will find properly a place here.

"We observe how copiously the minute odorous particles of flowers are communicated, and rendered sensible to our olfactory organs, when the air is loaded with moisture, which, in a dry atmosphere, or when the membranes are thickened, or parched by a cold, could scarcely be perceived.

"'In climes full of sunshine, though splendid their dyes,
Yet faint is the odóur the flowers shed about:
'Tis the clouds and the mist of our own weeping skies,
That call their full spirit of fragrancy out.'

"Besides, it appears to me that there is a condition of the mucous membranes of the air passages and vessels, in certain stages of pulmonary complaints, in which the tissues are preternaturally dry,—either from their texture being altered by cold or excitement, their pores closed, the natural lubricating mucus and fluids dried, or not secreting, and a certain morbid thickening of the coats of the air tubes taking place, calculated to diminish the calibre of their cavities, as well as to render their tunics less permeable to the air during respiration. This state of the parts will be much benefited by inhalation of aqueous vapour judiciously applied. The old or common mode of drawing in *vapour by the mouth, and cold air condensing it by the nostrils*, was calculated, in many cases, to produce more injury than benefit. After premising the most approved modes of removing or preventing the accession or progress of inflammatory action, the vapour of water should be made the vehicle of communicating such desirable medicinal qualities or principles, as are soluble or diffusible in it. Nor is it the worse than useless method of breathing, for a few minutes, from a teapot, or a tin inhaler, that can benefit. On the contrary, the advantage is derived from the long continued contact of the humid vapour, and the *regulated temperature*, keeping the otherwise dry and parched coats of the pipes bedewed for a *sufficient time*, to enable the alteration in their condition, and the softening in their textures, to begin, and prpceed, so far as to induce a new and more healthy state of their proximate principles, and a more natural condition of their actions, secretions, and circulations.

"But if the simple contact, and more permanent application of aqueous vapour alone, aided by the influence of altered temperature, and disposition of parts, can be so productive of good local effects, when properly applied, both as to time and method, is it not right to infer, that water may be the medium of conveying medicated vapour to internal surfaces, likely to profit from their application? The vapour of water, contained in the atmosphere, will communicate to a man in health as much of the soporific qualities of certain vegetables, if strewed around, as will compose and dispose to sleep. I hope yet to see the day, when some salutary mode of preventing many untoward degrees of pulmonary affections, may be directly exhibited to the parts in danger, through the medium of vapour; many of the primary degrees of disease, in those parts, removed; several of the more advanced or incurable stages relieved; the ravages of hepatization and ulceration retarded; and, where that termination is unavoidable, the approaches to dissolution smooth and composed."

"But inhalation of vapour has several advantages more than those of prevention, as above stated. Even in advanced pectoral affections, such as ulcerated lungs, or diseased mucous surfaces, the volume of aqueous vapour taken in lessens the proportion of atmospheric air presented to these parts. When they are denuded, parched, or inflamed, air affects them as a very active stimulus. Its perpetual renewal, at each inspiration, produces, by its frequent contact, injuries, which its more diluted or attenuated introduction would be less likely to accomplish. Therefore, if you inhale vapour which condenses in the cells, at least a small part of it, it bedews and covers the surfaces and ulcerations, by which means you exclude the application and arid excitement of the dry air. You do more: if you inhale ten inches of artificial vapour of water, mixed with ten of atmospheric air, you go far towards warding off the irritation of the latter from the moistened membranes *and superficies of the sores.*

"It is incredible the quantity of watery vapour that may be taken into the lungs; a patient will inhale it during four hours, through a close bag, appearing to admit little atmospheric air."

In using, says Dr Murray, the apparatus already described, or when a cup, tube, or vial containing moistened iodine is placed in the stream of vapour, the iodine sublimes in beautiful violet exhalations, from which the substance itself derives its name. "I mention this," continues Dr M. "because I knew a young lady, a patient, very much alarmed when she saw the vapour approaching her breath, purpled almost like the ominous colour of blood.

"In places where the vapour is not observable, holding a spoon wet in starch and water, near it, soon turns the starch blue, and is a proof of its rising in the room.

"In this trial the heat must not be high, and the iodine requires to be simple, or uncombined. I have noticed that the vapour of iodine, mixed with that of water, tinges a silver spoon gold colour, then dark. In summer, or where it is not advisable to keep the apartment warm with the boiler, a small cup of moistened iodine, set in a bowl of hot water, elevates abundance of the medicine through the air about the bed. It is less liable to decomposition in this way, than when mixed in water in a tin or iron boiler, where a sediment like damp or wet rust of iron soon subsides.

"It is so easy to keep the air of a room, in which vapour of water is diffused, so impregnated with iodine fumigation, that there is less necessity for resorting to any of its compound vapours. The gas, however, which is a component of hydrogen and iodine vapour, called *hydriotic*, could be easily diffused, in dense white clouds, from water charged with it. This, also, would saturate the atmosphere of an apartment, without the aid of artificial heat. Where there is the hectic flush and undue evolution of animal caloric, and when the palms of the hands feel much hotter than they really are, a wide mouthed vial of moistened iodine, grasped in the hand, abstracts its fervid temperature, and at the same time supplies the breath with abundant odour of the shore. A thousand other means of diffusing the fumes of iodine present themselves: a vial, a cup, or a glass tube, containing wet iodine, if suspended in the jet of steam, as it leaves the orifice of the pipe, will spread the vapour far and wide. In this manner a stream of it can be directed by a thin glass pipe, over the patient's face in bed, its great specific gravity causing it to fall and be inhaled. An atmosphere of iodine vapour, and that of water mixed with it, can be regulated to such strength as the patient finds agreeable. Such an apartment instantly reminds you, on entering, of the smell arising from kelp kilns, when burning marine vegetables along the coasts."

Plausible as are the views and suggestions of Dr Murray, they are corroborated by one case only of iodine inhalation; the success in which, without being complete, was still encouraging.

Doctor, or, as we must now call him, Sir Charles Scudamore, has lately published a small treatise in which he gives the history of some cases intended to show the sanative properties of iodine vapour when inhaled. He denies in his preface being a copyist of the views and practice of others in this particular point, and tells us that when he commenced his investigation of the powers of iodine, used in the way of inhalation, he had never heard a suggestion of the subject. All this may be so. It only shows that Sir Charles did not read on the subject which was engrossing so much of his thoughts. His preface is dated November 12th, 1830. Dr Murray's work was published in London in 1829, and the case detailed in it was attended by him and Dr Fourcade in the latter months of the same year. Sir Charles refers indeed to this work in the body of his treatise. But there is another more serious complaint to be made against Sir Charles. He dwells with considerable complacency on his success with the new remedy, gives a detailed account of several cases in which it formed part of the treatment; but he takes especial care not to favour us with a description of the mode of using it, nor of the apparatus by which it is administered. If this is not charlatanry, it comes so near the thing as hardly to require another name to designate it. As, however, his compatriot medical critics and reviewers have so freely commented on the impropriety of this conduct, we shall refrain from any further censure on it in these pages, than merely to hope that quackery, consisting, as it does, in concealment and implied fraud, will never be tolerated by a profession called liberal.

The nearest approach to gratifying our curiosity, as to the mode of employing inhalation used by Scudamore, is in the following sentence; in which, after speaking of his failure in other means, and his resolving to have recourse to iodine, he says, "I employed a preparation of it miscible with hot water, so as to remain in permanent solution, using for the purpose of inhalation a glass apparatus, well fitted in its construction for the exhibition of the remedy in the form of vapour."

The cases detailed by the author are not so conclusive of the paramount virtues of iodine, as illustrative of its being a very useful auxiliary remedy; since other substances were added to it, and being converted into vapour, were inhaled at the same time. The first two cases of pulmonary consumption of which he gives an account, were, he foresaw, evidently incurable. Still he had reason to be satisfied with the power displayed by the iodine of mitigating some of the most violent symptoms, and giving the patients comfort. After describing the condition of the first patient, he goes on to say:

"I prescribed a weak solution of iodine, with the addition of some saturated tincture of conium, mixed with water of 120 degrees of heat, to be inhaled for fifteen or twenty minutes, three times a day. I directed him to take a minim of a solution of acetate of morphia, containing a grain of the acetate in six minims, in a simple saline draught at bed-time, and to repeat this dose in an hour or two if necessary; to regulate the bowels by simple means; to wash the chest and upper part of the back with a mixture consisting of two parts of water, one of eau de Cologne, and one of vinegar; dipping a towel in the lotion for that purpose.

"I shall confine myself to a general statement of the further particulars of this case, as its termination was so necessarily fatal.

"On first using the inhalation, he experienced slight giddiness for a few minutes, and some sense of soreness with dryness in the tongue and throat; but the patient rather mentioned these sensations on being interrogated than complained of them; and they did not continue. He soon found that it afforded him great relief, the power of expectorating being remarkably facilitated; the cough also very much abating; the respiration becoming comfortable; and the chest materially freed from oppression. In all respects, he improved in a surprising manner. At the end of a fortnight, the pulse ranged below 100; the looks and the strength were improved; and both he and his friends, flattered by this rapid amendment, anticipated an eventual recovery of health."

The patient went out of doors twice, caught fresh cold, and in two months from the date of his physician's first visit ceased to live. "He always expressed in strong and grateful terms how much comfort and benefit he derived from the inhalation."

In the second case, pulmonary consumption in its last stage, the treatment was as follows:

"I prescribed an inhalation of iodine with conium, the sixth of a grain of acetate of morphia at night, and medicine in the day calculated to allay the intestinal irritation. I directed the chest to be washed with the compound vinegar lotion (page 329). The diet was made as nutritious as the weak digestive powers would allow.

"Extremely debilitated as this patient was, he could use the inhaler without difficulty; thus affording a proof of the convenience of this simple apparatus. The relief which was obtained from this process in the course of a few days was most remarkable, and such as to exceed my utmost expectations. The patient's description of the effects of inhaling was, that it abated the cough remarkably, and rendered the expectoration, which before had been much suppressed, easy and free; from which change ensued a comfortable state of chest, with a great improvement in the breathing. He observed, that he felt the inhalation very sensibly traverse the chest; causing an agreeable sense of warmth. By means of the acetate of morphia, the nights were passed in comfort. On former occasions, when opiates had been given, they disagreed so exceedingly, that he declared 'the remedy was worse than the disease.'"

This patient continued in a course of alternate amendment and relapse for many weeks, and finally sank under his disease.

The account of this case began thus: "Hæmoptysis, succeeded by ulceration, hectic fever, well marked; from all concurrent symptoms, the existence of phthisis pulmonalis established; the curative powers of iodine inhalation strongly displayed."

The subject here was a female aged thirty-four years. We have not room for a notice of the symptoms. Percussion and auscultation were had recourse to in all the cases.

The doctor describes the treatment thus.

"I prescribed a weak solution of iodine for the inhalation; internally, from one to two minims of the solution of acetate of morphia; and the following draught before rising in the morning.

℞. Magnes. sulphat. ʒi.
Infus. rosæ ʒxii.
Acidi hydrocyan. ♏i.
Syrupi tolutan. ʒi.—M. fiat haustus.

The chest all round was washed night and morning with the compound vinegar lotion.

"The diet was limited to boiled fish, vegetables and farinaceous puddings. At the end of a few days she found herself improved, and particularly as to the greater facility of expectorating, more ease of chest, and better respiration. The cough, however, still being very irritable, I added conium to the inhalation."

At the end of a fortnight the symptoms were greatly mitigated and the amendment very obvious. Fresh cold was taken, however, and the cough became more irritable. The inhaling mixture was changed for one consisting of conium and prussic acid. This indisposition soon yielded to treatment, and the iodine inhalation with conium (hemlock) was resumed, and with an increased proportion of iodine. Among other evidences of returning health on this course were gain of flesh and strength.

She had been most attentive to the use of the inhalation three times a day, and extolled it as the source of her improvement. The morphia was discontinued at night.

The diet is worthy of notice. "She took mild animal food each other day, and at dinner two ounces of old port in a tumbler of cold water. She continued the use of the vinegar lotion. She took carriage exercise when the weather was favourable, and walked out occasionally."

In another fortnight her physician "prescribed a saline draught, omitting the hydrocyanic acid, and allowed her to take meat or poultry every day. She continued to amend regularly. The catamenia returned. Three months having elapsed, she had recovered so completely that no farther treatment appeared to be necessary. For the last week she had inhaled twice a day."

The cure in this case was complete.

The fourth case in Sir Charles Scudamore's practice is described as, "Bronchitis attended with high irritation. The existence of tubercles questionable. The utility of inhalation well shown, as materially assisting in the removal of the symptoms."

It is not to be expected that we should repeat the account of this or of the cases which follow, in the same detail as the others. Our object was to make the reader acquainted with the practice of Dr Scudamore, and to apprise them of the share which the inhalation of iodine may be presumed to have had in the cure. In this case of bronchitis, the treatment consisted of leeches to the right side of the chest, and the lower part of the sternum, and a blister between the shoulders; acetate of morphia at night; a mixture, in the day, with sulphate of magnesia, infusion of roses, and one minim dose of hydrocyanic acid; and an inhaling mixture composed of conium, hydrocyanic acid, and an alcoholic tincture of ipecacuanha.

At the end of a few days, the urgent symptoms being relieved, the use of the iodine inhalation with conium was directed, the other medicines being continued in minor doses. The inhalation was used for twenty minutes, three times a day, and at the end of a week the proportion of the iodine was increased, and the conium was omitted. This change was made on account of the diminution of all the symptoms.

Case fifth was of chronic cough depending on tuberculous irritation, cured by the inhalation of iodine and hemlock.

Sir Charles seems aware of the doubts which may be raised respecting the cause of his success depending so much on inhalation, and replies to the objection in these words: "In answer, I must observe that an immediate and decided relief to the cough was given by the inhalation, such as could not be ascribed to any other cause; that various medicines which had been tried had proved ineffectual; and that in similar cases I have wholly failed to produce the same benefit by internal medicines alone."

The history of case sixth is thus headed: "Phthisis pulmonalis; tubercles in each lung; great probability of an ulcer at the apex of the right lung; hectic fever present; the iodine inhalation highly beneficial; the tubercular irritation removed; and the patient restored to health."

The seventh case was of "Empyema with tubercles in the lungs." The patient was at one time convalescent; but exposure brought on a relapse which terminated in death.

In the eighth case there was ulcer of the larynx, with tubercles at the apex of the lungs. The good effects of iodine inhalation were well exemplified; although the termination of the case was fatal.

Case ninth was "Asthma—bronchitis—promptly and very remarkably relieved by inhalation of iodine with conium."

Case tenth. "Chronic bronchitis. The cough extremely urgent; the secretion from the mucous membrane remarkably viscid. The iodine inhalation curative within a short period of time."

Case eleventh. "Habitual asthma. The difficulty of breathing, attended with distressing cough, readily induced by cold, damp, and especially by foggy states of the atmosphere. The symptoms satisfactorily relieved by inhalation."

Case twelfth. "Chronic laryngitis. The symptoms immediately relieved by an inhaling mixture of conium with hydrocyanic acid; and the affected parts further restored by the inhalation of iodine."

Case thirteenth. "Common irritable cough; speedily cured by inhalation of conium."

Case fourteenth. "Chronic bronchitis. The cough extremely urgent, and the bronchial secretion unusually viscid and tenacious. The cure effected by inhalation and counter-irritation."

Case fifteenth. "Bronchitis unaccompanied with fever. The cough very urgent, and remarkably relieved in a short time by an inhaling mixture of conium, hydrocyanic acid, and ipecacuanha."

Case sixteenth. "Spasmodic asthma. Very satisfactory relief obtained from the inhalation of æther, conium, and ipecacuanha."

It will be seen from the above cases, that Sir Charles Scudamore has not pretended to restrict himself to the use of iodine inhalation alone; and it is difficult to say how far we can yet rely on this agent for the cure of the diseases mentioned by the author.

In his "General Observations and Conclusions," he endeavours to apologize for what he knew to be censurable in his concealment of the precise mode of conducting inhalations, by alleging his fear that patients might be tempted themselves to undertake the treatment of their own cases, if he introduced the formulæ of the remedies for inhaling. This is rather strange language from a professional man, who under circumstances like the present is presumed of course to be addressing himself to medical men, and not laying baits for catching patients by such half and half notices. Even if Scudamore wrote for popular use, he ought to have given every the minutest detail of his practice, to prevent the mistakes and imperfect trials which he professed to dread; and which are much more likely to occur to patients than if he had frankly told them all he knew of the subject.

As a kind of atonement, he offers the following farther particulars for the information of the professional reader.

"As by mixing the tincture of iodine with water, the iodine itself separates into flakes, which become precipitated, and as this medicine is very sparingly soluble in water alone, I found it expedient to form a preparation which should be uniform, and preserve its transparency when united with water. This advantage is effected by adding together iodine, hydriodate of potash, distilled water, and alcohol. The proportions of the ingredients are to be varied according to the circumstances of the case.

"The tincture of conium is a saturated tincture prepared from the dried leaves.

"The tincture of stramonium is a saturated tincture prepared from the dry leaves and stalks.

"The tincture of ipecacuanha is a spirituous tincture prepared from the roots.

"The hydrocyanic acid which I have always employed was of the specific gravity .994.

"The æther employed is the pure sulphuric æther.

"The chlorine solution is the saturated solution of pure chlorine gas in distilled water.

"Of all these agents, the iodine is the most active, and that in which I place my confidence as the curative remedy in phthisis pulmonalis. The temperature of the water with which the preparation is to be mixed should be from 115° to 120° of Fahrenheit; and, when the proportion of iodine is increased to a full measure for each inhalation, I direct that the quantity be divided into two equal portions, the one to be used for the first ten minutes, and the other for the same space of time in continuation; and, as the average frequency, three times a day: but sometimes it may be expedient to use it for ten or fifteen minutes only at a time, and three or four times a day. The inspiration should be as strong as can be conveniently made, in order that the vapour may freely enter into the lungs: but the patient should inhale in a manner not to fatigue the chest; and this evil will be avoided if he allow himself sufficient interval between the periods of inhaling to recover power.

"I lay it down as a principle, that inhalation should always be so conducted as not to produce distress to the patient in any way, either as regards the composition of the mixture, its strength, or the period of carrying on the process.

"In first entering on the treatment of inhaling, the irritation of coughing is usually produced; and in some cases this happens on every subsequent occasion; but, unless this prove excessive or permanent, it does not form an objection to the treatment, for the power of expectorating is remarkably facilitated, and, the bronchial tubes being cleared, a material subsequent relief to the cough is afforded. But a curative and not merely a palliative effect is the object to be held in view.

"The proportion of alcohol contained in the different materials is too small to produce any inconvenient stimulation; it is necessary as the menstruum, and it is useful also as causing the volative parts of the medicine to rise more freely with the watery vapour.

"The administration of the iodine inhalation is improper when any decided inflammatory action is present. It happens, occasionally, in phthisis pulmonalis, that blood is coughed up, either pure or mixed with the sputa. In the first case, it is most probably the consequence of a rupture of vessel, caused by the force of coughing, when there is an increased capillary circulation; and such appearance should induce us either to suspend the inhaling process altogether, or to use only sedative ingredients till the expectoration cease to be coloured. But, when the blood is of a very dark colour, instead of being of a bright scarlet, and, more especially, when it forms only a proportion of the sputa, we may conclude that it is the consequence of that slow ulceration by which small vessels are eroded; and in such circumstances I have not been deterred from using the iodine; but have always blended with it the conium. The disappearance of colour in the expectoration will confirm the propriety of the treatment.

"The admixture of iodine, and also of chlorine, with hydrocyanic acid is incompatible; as is also that of iodine with chlorine.

"The tincture of conium is usually very soothing in its effects, and may be mixed with any other materials.

"Tincture of opium may sometimes be used advantageously, either alone or as entering into the composition of the inhaling mixture. I have occasionally added it to the iodine solution; but, for the most part, I give the preference to the conium.

"The tincture of digitalis produces sedative effects, and more especially when united with the hydrocyanic acid. In one case in which spasmodic irritation, united with slight symptoms of inflammatory action, prevailed to a great degree, I obtained the best effects from this mixture.

"The tincture of stramonium exerts an antispasmodic power in asthma.

"The tincture of ipecacuanha is expectorant.

"The internal use of hydrocyanic acid is by some practitioners contemplated with great apprehension. I do not prescribe it except in very small doses, and which are perfectly safe; but I can confidently state that no inconvenience attends its employment as an ingredient for inhalation, while it often proves highly serviceable as a sedative and antispasmodic. The dose which I have usually employed has been from three to six minims, using the water from 100 to 110 degrees.

"Æther is found to be very useful in a spasmodic condition of the air passages, and contributes to facilitate expectoration. It may be joined with any of the other ingredients, or used separately. Such is its great volatility, that the water in the inhaling bottle should not be of a higher temperature than 100 degrees; and the quantity should be renewed every three or four minutes, ten minims being added each time; but the water need not be changed.

"In cold weather, especially, it will be necessary to keep the bottle containing the inhaling mixture (of any kind) immersed in hot water, during the process, in order that the proper temperature may be kept up."

Dr Berton having first assured himself of the innoxious nature of the air loaded with iodine vapour, by experiments on animals, had recourse to it as a remedy for pulmonary consumption. Three patients labouring under this disease were, as he informs us, somewhat benefited. No cure is reported. Dr Berton feels more confidence in its efficacy when employed in chronic bronchitis. His mode of administering the remedy is thus described. In a flask with two tubular openings, he puts diluted sulphuric acid, and on this projects a quarter or half a grain per diem of the hydriodate of potassa; the iodine is promptly disengaged in the form of vapour, and this is inhaled by the patient through one of the tubes of the flask.

The process is repeated from four to ten times a day; the duration of each being from four to five minutes.

Here we have not only the inhalation of iodine vapour suggested, but actually employed as a remedy for pulmonary consumption, and the mode of using it described by Dr Berton nearly two years* before Sir Charles Scudamore favoured us with his treatise, and the excuse for his withholding details, which every physician is bound to lay before his professional brethren—either when he publishes on the subject, or when invited by them to make the communication.

In addition to the use of vapour by inhalation, it has been, as the reader may remember, advised by Assalini and others to be directly applied to the inflamed surfaces of the eyes, ears, nose and mouth. For this purpose simple aqueous vapour has been found very serviceable, or that obtained from infusions of chamomile flowers, belladonna, digitalis, poppy heads, &c. In ophthalmia we are not sufficiently alive to the great relief obtained by such means—when all the collyria in the form of washes, aqueous or spirituous, with vaorius salts in solution fail entirely. After the first or acute stage of inflammation of the mucous covering of the eye (*conjunctivitis*) has passed, but there still remains great pain, weeping, redness, and engorgement, the application of iodine vapour to the part, as recommended by Dr Murray, will be attended with happy effects. Nor can we doubt that in ulcerations following otitis, the fetor of the discharge would be removed, and the diseased surface be made to take on a healthy action by similar means, or by the union of iodine and conium vaporised.

Chlorine, taken by inhalation, is a remedy now engaging the attention of the profession. As is usual on these occasions, we have remote analogies and coincidences introduced as proof direct, in favour of a practice which was originated on other grounds.

Dr Murray, in the work often referred to, speaks thus on the subject of chlorine.

"If the statement of our respected friend, Mr Greenfield, be proved correct, that an atmosphere of chlorine gas and vapour of water prevents consumption, among his paper makers, a class of persons most of all obnoxious to that complaint, from their confinement, part of the day, in thick clouds of dust in a rag-loft of the paper mills—if chlorine and steam, dissipated through the works, can prevent phthisis, is it not reasonable to suppose similar means might contribute towards the cure of persons who might have contracted the complaint? Would not, therefore, the junction of chlorine gas, and that of iodine, be a rational proposal, regulated, of course, according to the different degrees of the disease?"

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* The above notice of Dr Berton's practice is taken from the North American Medical and Surgical Journal for July 1829.

By similar arguments we might be persuaded that the vapour from oak-bark decoction is useful in phthisis, since it is stated in some of the periodicals that tanners were not observed to be liable to the disease.

M. Gannal, a chemist of Paris, has tried the chlorine inhalation in many cases of pulmonary consumption; but as far as we are able to judge from the published accounts of his practice, and even from his own statements, biassed as they are by excessive partiality for the remedy, we should not feel disposed to regard it as safe and salutary in this formidable disease. Farther trials may be justifiable, but they ought not to be made without a full conviction of the powerfully irritating nature of the chlorine. As good a summary of the opinions and facts in this matter, as we are yet possessed of, will, we believe, be found in the following notice from the North American Medical and Surgical Journal for January 1830.

"At a meeting of the Royal Academy of Medicine of Paris, (Section of Medicine) 11th of August 1829, M. Desportes reported on a case of phthisis cured by means of inhalations of gaseous chlorine, by Dr Cottereau, *aggrégé* of the faculty of medicine of Paris. The subject is a young medical student, of delicate health, and in whom all the symptoms of the tubercular affections of the lungs were observed in a very high degree. The patient was in a frightful state of debility and emaciation, and the disease appeared to be beyond all hopes of cure, when Dr Cottereau, by means of an instrument of his invention, administered the chlorine gas. The influence of this treatment was rapid, and the young man recovered perfectly. At the time the case was drawn up, *four months* had elapsed since the cure, and the subject of the case continued well, although he had applied himself to hard study, and had made botanical excursions of seven to eight leagues in one day.

"The reporter is of opinion that the chlorine exerted a beneficial influence on M. Cottereau's patient, and affirms, that he has derived similar effects from this agent. He regrets, however, that the author has not entered into greater details relatively to the action of the chlorine. He adds that he has noticed the following symptoms after the administration of the remedy: irritations of the mucous membrane of the pharynx and bronchiæ, propagated to the lungs, copious expectoration, dry and fatiguing cough, redness of the cheeks, hot skin and frequent pulse. The vapours of chlorine can produce suffocation; but with care it is easy to guard against all accidents. The reporter concludes by proposing, 1. That the Academy address thanks to Dr Cottereau. 2. That the latter be requested to continue his trials with remedy, and particularly to make experiments on animals in a state of health and disease, in order to ascertain the effects of clorine. 3. That he be requested to communicate to the Academy the results, whether favourable or not, of his observations.

"M. Honore stated the case of a young woman, affected with phthisis pulmonalis, whom he treated, last winter, by means of chlorine gas. He obtained no success. M. Coutanceau announced that the chemist Gannal made a number of experiments of the kind at the Val-de-Grace, but without the least success. MM. Moreau and Merat cited instances in which chlorine administered in too great quantity occasioned injury to the patients. Finally, M. Rullier remarked that he had resorted to this remedy in his hospital, but hitherto without advantage. Notwithstanding this unanimous opposition to the beneficial effects of chlorine, the Academy decided that thanks should be addressed to Dr Cottereau."

Sir Charles Scudamore remarks on the subject of *chlorine inhalation*:

"Of the chlorine solution I have to observe, that, as a remedy employed in the same manner and with the same views as iodine, it has not afforded me results approaching in value to those obtained from the latter medicine. In several cases of phthisis pulmonalis I substituted the chlorine for the iodine; but did not continue its use more than a few days, as its beneficial action was, in my opinion, very decidedly inferior; and, on every occasion, the patient, when resuming the inhalation of iodine, in strong language expressed his conviction of its being by far the most serviceable remedy.

"Chlorine, from its great volatility, comes over so quickly with the aqueous vapour, that the total quantity used at each inhalation should be partitioned into doses, if the process be continued beyond four or five minutes; otherwise its action will at first be too strong, and at last too weak. For the temperature of the water I prefer 110°; and for each of the subdivided doses from ten to twenty minims. I have usually found that the patient prefers the plan of protracted inhalation three times a day, to the greater frequency for a shorter time; although I consider this point for the most part optional."

In addition to the statements of Dr Bell, which we have hitherto adopted, we must add, in justice to Mr Gannal, an account of the manner in which he directs the chlorine to be administered, and a history of some of the cases in which it was used.

"Chlorine then, as produced from its combination with oxides, is not of sufficient purity to warrant our applying it to the delicate and already irritated organs of the phthisical patient.

"To remedy this inconvenience, I make use of a solution of the pure gas in distilled water. I take a three-necked bottle: the first opening receives a straight tube, the extremity being plunged into about four ounces of water; the second opening has a tube, which leaving the top of the bottle, is bent at right angles and terminates in a flattened embouchure; the third is furnished with a glass stopper; it is by this last opening that the water is changed, and the gas introduced. The water in the bottle at the time of fumigation should be at the temperature of about 32° of the centigrade thermometer, equal to 89° 6′ of Fahrenheit's scale; a certain quantity of the liquid chlorine is then added, and by gently shaking the bottle a portion of the gas is disengaged, which may be breathed by applying the mouth to the end of the bent tube. As the air is gradually withdrawn from the bottle, a fresh quantity is supplied from the atmosphere by the straight tube, and bubbles up through the weak chlorine solution charged with the gas. The fumigation may be continued for the space of four or six minutes, after which the disengagement of the gas ceases.

"It is of the utmost importance that we proceed with the greatest caution, being guided by the consideration of the energetic nature of the means employed, as also of the delicate fabric of the organ concerned. In my practice I commence with 10 drops of the liquid chlorine to two volumes; if the patient can well bear this dose, and according to the susceptibility of his lungs, I raise it gradually to 12, 15, 20, 30, 50, 60, 72, at a time. However, there are scarcely two persons who can bear exactly the same dose; we must, therefore, as it were, carefully explore the state of the organ to be acted upon, and from thence deduce the proper quantity.

"The same reasoning holds good as regards the *number* of fumigations during the twenty-four hours."

"They must be regulated by the effect produced, and the sensibility of the parts; generally the number may be from six to eight. It appears evident, according to the above process, that the chlorine inhaled cannot enter the lungs unless impregnated with a number of aqueous particles, from which circumstance it is much less irritating than in the dry state; and lastly, not being commixed with any foreign matter, its action confined to itself is not complicated with any superadded irritation.

"We may also just observe, that the apparatus required for its exhibition is simple, easily obtained, and moreover portable, and being made entirely of glass, the chlorine cannot possibly become contaminated with metallic molecules, and thus interfere with its purity. It cannot, for example, act on copper, convert it into a chloride, and in this state painfully affect the lungs, or, as there have been some instances, cause extensive inflammation."

M. Ganal gives an account of the first case in which the remedy was applied, as follows:

"M. L—, of Gentilly, was a man forty years of age, of a lymphatic and bilious temperament, and had been troubled a long time with pectoral disease when he applied to me. I sent him to Dr Laennec (nephew of the professor). This physician, after examination, found that the chest under the right clavicle had a more dull sound than under the left; the respiration sufficiently free throughout the right side, was caverneuse under the armpit and clavicle, and accompanied with a sort of moist rattle; in the left portion, respiration was natural, only accompanied here and there by a slight wheezing.

"From these symptoms, M. Laennec announced the existence of a tubercle on the top of the right lung, 'and, I dare even affirm,' he adds, 'that the whole of this lung is more or less covered with tubercles of various magnitudes, indicated by the peculiar and variable sound attending respiration, as also by the *crackling rattle*. I think,' says M. Laennec, in conclusion, 'that this case is one in which the chlorine fumigations may be tried, but with discretion, however, on account of the disposition to hemoptysis and to pleuritic inflammation.'

"This man had been ill three years; commenced, on the 18th of October 1827, to use the fumigations, the dose being ten drops, eight times a day; from the 18th to the 23d, respiration became less obstructed, the sense of oppression was much diminished, the expectorated matter from being purulent assumed a mucous appearance, the diarrhœa ceased, appetite returned, and the digestive organs again performed their healthy functions, and he passed more tranquil nights.

"On the 23d, however, from eating herrings, symptoms of indigestion were produced, the expectoration was tinged with blood, but notwithstanding this, the chlorine was still continued, and the patient gradually progressed. No inconvenience was felt from breathing the gas; the patient seemed extremely sensible of the least atmospheric change, colicky pains were experienced on the 17th of December, but were relieved by emollient applications, the appetite continued good, digestion went on well, the patient had one stool daily, his nights were undisturbed, the nocturnal perspirations were not so frequent, the expectorated matter purulent in the morning was mucous during the day. The sense of oppression is almost gone, and the cough is much less frequent. On the 23d of December the pulse was 62. The season was much against the successful exhibition of the remedy, and if the man is not cured, we cannot refuse to admit that the chlorine, on the one hand, never incommoded him, and on the other, produced such alleviation that without doubt the patient's life was evidently prolonged."

The second case ended in death.

"The third case I shall mention," says M. Ganal, "is M. Le Comte de ——, who had been ill for about two years; he had taken large quantities of pectoral medicines; a blister had been applied to his arm when he left Belgium to return to Paris, according to the advice of his physician. His cough was troublesome, obstinate, always accompanied by purulent expectoration; he slept only at short intervals; a dull sound was heard at the upper part of the left lung. M. D. of a dry and warm temperament, by the advice of several physicians whom he had consulted, continued the plan of treatment already pointed out, and was recommended by them to pass the winter at Nice in Italy, or some other southern country.

"When I was called to him, I commenced the chlorine fumigations on the 21st of October 1827. Their first effects were to diminish the frequency of the cough, and the quantity of expectorated matter. The appetite improved, colour returned to the cheeks; the skin remaining dry and hard, baths were ordered, and Dr Begin recommended a mild regimen. The health of the patient has been improving since the 1st of November, and excepting certain unfavourable changes, produced by atmospheric variation, things have worn a promising aspect, and at present there is a well grounded hope of a perfect cure. The peculiar sound in the left lung has ceased, the appetite is good, the nights tranquil, the usual strength recovered, and every thing shows fair for speedy restoration."

In the second memoir, the history of this case is continued as follows.

"The Count de la Hutte continued to get better, and left Paris, the 8th of April, perfectly restored. The following is a copy of a letter respecting him, by Dr Begin:—The Count de la Hutte, by the persevering use of the fumigations, perceived both the oppression and the expectoration, which were exhausting his strength, gradually disappear. He was in the habit of taking an account of the daily number of his fits of coughing, as also of his sputas, and both diminished in a constant progression. His appetite was as good as in any former period of his life, and might be satisfied with safety. The patient felt no longer a sense of constriction in the thorax; he slept perfectly well, enjoyed the pleasures of walking and the theatre without any inconvenience. The sound which had been perceived in the chest, under the clavicle, was heard no more, and every thing indicated a cure, at once as substantial as unexpected, at least, as far as regards shortness of time, when we recollect the Count's long previous illness. Since his departure I have kept up a correspondence with him, and, very lately, he has written me, by his physician in ordinary, Dr Francois de Mons, the following details relative to himself. 'I can assure you,' says Dr Francois, 'that, at this time, Count de la Hutte enjoys the best possible health in every respect. It might almost be doubted that his chest had ever been affected, so free at present are his respiration and speaking, notwithstanding rather hard exercise, and a regimen not quite in accordance with the laws of health. With some similar examples, sir, I promise you an ample harvest of glory, in spite of the withering breath of envy, always directed against the most useful discoveries.

"'I have watched with pleasure your continued success, whatever your medical journals may have said, too often made available by persons interested to deceive. We Belgians, strangers to your chit-chat, and that gossipping spirit so hurtful to the progress of science, will be delighted with a detailed account of the actual state of things concerning your happy discovery. If you can spare the time amidst your varied occupations, I shall be greatly obliged by your giving me some information respecting it, which it will be a source of delight to me to publish in our journals; as impartial judges, you are sure of finding in us both attention and justice.

"'I shall be charmed on my part, with being charged with a communication, which cannot but conduce to the advantage of science and humanity.'"

Of eight cases recorded this is the only one of cure. The subjects of the others were said to be benefited by the inhalations and their life prolonged. The memoir closes, however, by the history of a remarkable case of pulmonary consumption in the third stage, cured by chlorine fumigations. It is related by M. Costa.

"On the 12th of March 1827, I was called," says M. C., "to Mademoiselle Genny Wick, a native of Switzerland, aged twenty-eight years, to cure her of what she called a neglected cold. Her high stature, five feet three inches, her contracted chest, her delicate constitution, her complexion, which resembled the withered leaf of autumn, her eyes that shone with a morbid brilliancy, as also the expectorated blood, the suppression of the menstrual flux, the presence of a cough, dry at first, afterwards attended by an expectoration, abundant, and composed partly of mucous lumps, the great and increasing loss of flesh which accompanied and followed this assumed cold, the oppression which was experienced on the least motion, the difficulty of lying on the right side, the daily shivering fits, the fever and perspirations which attended every night, the want of appetite, the thirst, and above all, the dull sound proceeding from the anterior upper part of the left side of the chest, and the total absence of all respiratory sound in this part. From all these symptoms united, I felt assured that it was no mere cold I had to encounter, but a consolidation of the upper part of the left lung, already probably in an indurated state. I had the greater reason thus to conclude, because the disease was of five months standing (having commenced in October 1826), because the mother and two brothers of Mademoiselle Wick had died of diseased lungs, and because in several colds she herself had taken since the age of eighteen years, she had not experienced either hemoptysis, suppression of the catamenia, nor, in a word, any of the symptoms which indicate any particular injury referable to the lungs.

" My opinion in this case seeming to me well founded, I ordered, with the intention of resolving the consolidation, twenty leeches to the part affected, emollient cataplasms, to be renewed several times a day, foot baths, a pectoral mixture, a cup full of ass's milk, a waistcoat of flannel, with a vegetable and milk diet.

" The leech bites bled abundantly for several hours; from this depletion no good was derived to the patient, for they weakened her greatly, diminished the expectoration, and rendered it more difficult; it also increased the oppression and the febrile symptoms. This first failure, joined to the natural aversion the patient witnessed to the leeches, made me careful, and prevented my recurring to their use, which, in some analogous cases, had given me cause to congratulate myself on my success. I contented myself, therefore, at least for the present, in pursuing the other means already mentioned, and towards the 20th of March, the patient was restored to that state in which I saw her the first time. From the 20th to the 30th of the same month, there was no change in the health of Mademoiselle Genny, with the exception of her expectoration being streaked here and there with blood; and the patient now and then experienced slight pains in the region of the chest, which she never had felt until then. Prescription: continue the same means, the white looch.

" From the 30th March to the 15th April, the expectoration became easier and more abundant; its form was no longer *arrondie*, as it was five days before, but more homogeneous. It began to diffuse a mousy or musty odour, a characteristic, as I have always considered it, of the formation of tubercles. The want of appetite, the thirst, the fever, and the nocturnal perspiration, still remain, and seem even to increase. The patient also became visibly thinner, and began already to think herself incurable. The application of the stethoscope to the anterior superior part of the left region of the chest, now indicates an incipient pectoriloquism, corresponding to the middle of the second rib, and a slight mucous rattle exists in its vicinity. Prescription: blister to the left arm; warm aqueous fumigations by the mouth. Continue to use the means as before.

" From the 15th to the 30th April, the pectoriloquism increased, and became more extensive. On applying the stethoscope or ear to the affected part, a bubbling noise was perceived, produced evidently by a motion communicated by breathing to matter contained in a cavity formed in the left region of the thorax.

"That this cavity existed was incontestably proved by percussion on the chest, which gave a hollow sound in that situation, as also by the nature of the expectoration, and the peculiar manner of its ejection, even if the pectoriloquism and the bubbling sound, before mentioned, could leave any doubt on the subject. The matter expectorated is at present decidedly purulent and fœtid, more abundant, of a flatted form, and brought up, particularly in the morning, with a degree of ease, known only to those who have vomicæ communicating with a large bronchial canal.

"The fear of incurring those consecutive misfortunes which always attend the absorption of a portion of the matter contained in an open vomica, and the desire of destroying the strong and fœtid smell which affected the breath and sweats of my patient, I determined to have recourse to the chlorides, which possess, as every body knows, the property of arresting the decomposition of animal substances, and of restoring to pus the good qualities of which it is deprived by remaining in a deep seated cavity in contact with air.

"It was, I confess, with a two fold idea, rather than with an expectation of its being directly useful to my patient, that I advised a trial of it, by adding to the water used in her fumigations morning and evening, a pinch of chloride of lime, and to breathe the vapour thus medicated, for three or four minutes at a time. My advice was followed, and when I paid my patient a visit, five or six days afterwards, she informed me, with an appearance of satisfaction difficult to describe, that the expectoration and perspirations were less, and no longer diffused the least unpleasant smell.

"A result thus quick and efficacious, induced me to increase the number of fumigations, not that I had as yet the least idea that they would ever effect a cure, but with the sole intention of exciting a slight cough, and thus preventing the matter secreted by the sides of the vomicæ, remaining too long in their contact. This was the 10th of May, and from this day forward the fumigations were increased from two to three per diem; but on the 15th, the chest becoming painful, the oppression, as also the fever being increased, we were under the necessity of suspending them until the 20th, and of confining ourselves to the use of other means. During this short intermission, the expectoration, though less abundant, took again its bad qualities, which, with the disappearance of those symptoms which had at first induced us to suspend the fumigations, now determined us again to have recourse to them, beginning with one in the evening of two minutes' duration.

"On the 25th we increased them to two. On the 30th the patient was not at all inconvenienced by her fumigations; on the contrary, her expectoration was less abundant; of a better character; her nights were more tranquil; the fever and perspirations were sensibly diminished; the strength and appetite were increased; the pectoriloquism became more circumscribed. Prescription: go on as before. On the 10th of June the patient was attacked with a violent colic, similar, as she said, to what she had formerly experienced at each period of menstruation. During the night of the 11th the menses appeared, in the morning of the same day the patient was calm and cheerful; she slept part of the night, and awoke in the morning free from perspiration; the pulse indicates but little fever, the expectoration is almost entirely mucous, white, inodorous, and insipid, the pectoriloquism scarcely exists, and that portion of the lungs which two months ago was consolidated, is becoming permeable to air; the courses are abundant. Continues the same prescription. The 15th, menses have ceased only yesterday, and although the patient has lost much blood, she is stronger to day, more cheerful, and her complexion is clearer than before. The cough has almost ceased, and it is only every now and then that the patient expectorates a matter entirely of a mucous character; her strength, appetite, and embonpoint rapidly increase; her nights are good; there is no fever; the perspirations have ceased. Prescription: issue to the left arm, suspend the chlorine fumigations, a drind of Iceland moss, milk, and fruits. The 25th, increase of cough, respiration free, the lung is permeable to air throughout, at least all but a very small part corresponding to the middle of the second rib, which I look upon as the cicatrix left by the obliteration of the vomicæ. Continue the same regimen. The issue still continues open; from this time her strength and embonpoint increase rapidly; the menses keep their regular time of appearance. In the month of October, namely, three months and a half after her cure, Mademoiselle Wick was married; her change of life did not however at all affect her health, so far from it, she is become pregnant, and is brought to bed in due time of a fine child. Neither her pregnancy, nor her lying in, occasioned any dereliction from health, so that I think myself fully authorised to consider her cure complete and permanent.

" *Reflections.*—This case needs no comment to show the good effects of chlorine, as evolved from chloride of lime, as it is in effect of the same nature as those which demonstrate in an incontestable manner the efficacy of any therapeutic agent. Mademoiselle Wick takes cold during the winter of 1826; she neglects it at first, hoping that it might end like those she had had for ten consecutive winters. But this time, whether it was that the bronchial inflammation rose higher, in consequence of the frequent recurrence of the same morbid phenomenon, or whether it was that the natural predisposition she received from her mother found a more favourable opportunity of developing itself, the malady did not as before confine itself to the mucous surface of the bronchiæ; it passed these limits, and invaded the parenchyma of the lungs, a considerable consolidation results, hœmoptysis, fever, menstrual suppression, and the development of a greater or less number of tubercles, awakened at last the attention of the patient; but when I was called in five months had elapsed, and consumption was manifestly present. Too unhappily convinced, that when the affection of the chest has arrived to this degree, it is almost universally beyond the reach of art, I confined myself in the first instance to the use of palliative means. I had at once recourse to leeches, with the view of diminishing the extensive consolidation I had to encounter; but this, far from relieving the patient, seemed rather to add fresh impulse to the activity of the disease. Thus it was easy to conclude, that from this period the tubercles were softening, that in fact the suppurative process had commenced; lastly, that the disease had proceeded to the third stage. What gave us the greatest confidence in the opinion, was the nature of the expectoration, the increase of febrile symptoms, and lastly, the indications of the stethoscope and percussion. The vomicæ having been formed and now burst, the state of Mademoiselle Wick became more critical, in consequence of the air in contact with the suppurating membranes vitiating their secreted products. Thus it was that in a few days afterwards the expectorated matter, until then puriform, became purulent; that the odour of must or mice which it had at first, changed to fœtid; that the fever and colliquative sweats which terminated the febrile paroxysm also increased. It was at the same time that the want of appetite, the thirst, the marasmus, and lastly, all the terrible symptoms which characterize phthisis advanced to the third stage, proceeded with rapid strides. Now I ask what would have been the end of such a malady without the beneficial effects of chlorine? The answer is not a doubtful one, at least in my estimation. It may, indeed, be objected, that Bayle, Laennec, M. M. Cayol, and Rullier have witnessed the spontaneous healing of vomicæ; granted; but in the case of spontaneous cure, the vomicæ were almost constantly produced by acute inflammation, caused frequently by a blow or fall on the chest, in persons strong, of good stamina, and free from any predisposition. Here, on the contrary, the vomicæ were the result of the suppuration of a portion of the lung slowly consolidated, produced by an internal cause, and consequent upon predisposition. What a striking difference !!!

"In the greater part of the instances of spontaneous healing of vomicæ, found in authors, or collected from private sources, nature has had all the credit of the cure: art did scarcely any thing. Here, on the contrary, art has done every thing. Nature would evidently have been powerless without the agency of the chloride of lime; it is to it, and to it only, that we owe the happiness of being able to publish this interesting case. It was the employment of the chloride of lime which ameliorated the deadly qualities of the expectoration. It is it which enabled the ulcerated sides of the vomicæ to form healthy pus. Again, it is this agent, that, by provoking a slight cough, favoured the expulsion of the matter contained in their cavity, and prevented its accumulation. Lastly, it is to this two-fold effect that we owe the rare happiness of seeing the sides of the vomicæ contract themselves, approach each other, collapse, and thus obliterate a cavity that would infallibly have been the cause of the death of Mademoiselle Wick.

"This interesting case attests, in common with many others, the eminent blessings that chemistry has conferred on mankind, by discovering to us the chlorides, which have already rendered so many and so great services to humanity, and which, perhaps, as far as man is concerned, is destined to become a powerful and efficient means for the preservation of his health."

Having now introduced the requisite data to enable them to form a correct judgment respecting the probable utility of medical inhalations, our readers can hereafter, on fitting occasions, have recourse to the practice in the case of their own patients with a greater chance of success.

QUARTERLY SUMMARY

OF

MEDICAL AND SURGICAL INTELLIGENCE.

I. ANATOMY.

1. *Total absence of the Iris.*—An account is given in the *Archives* of an observation made by Dr Stoeber of Strasburg; it is as follows:—Pierre Muller, born in March 1830, healthy and strong, exhibits no other faulty structure than that of his eyes. Externally the eyes appear to be well formed, but on looking into them no iris can be discovered. The pupil, which looks black, is as large as the cornea. When the light strikes them in a certain direction, the pupils are of a blood red colour, or like two balls of fire. The child enjoys the sense of sight, notwithstanding this rare privation of a most important organ. Notices of several cases observed by one of the older and several modern writers are appended to the paragraph from which we take the above.—*Archives, March* 1831.

2. *A case of imperfect brain.*—M. Magendie announced, at a late sitting of the Royal Academy, that M. Combette, resident pupil at the Orphan's hospital, had deposited in his laboratory the encephalon of a girl ten years old, who died from excessive masturbation. This brain possesses no trace either of cerebellum or pons varolii, a circumstance which must produce no little disturbance in some of the physiological systems.—*Ib.*

II. PHYSIOLOGY.

3. *On the circumstances which affect the frequency of the pulse in health.*—In the year 1823, the Faculty of Medicine of Tubingen offered a premium for an Essay upon this interesting subject, and M. G. H. Nick gained it. His observations are noticed in the *Archives Generales* for May, of the present year, and we are indebted to that excellent journal for what we now lay before our readers from Mr Nick's Essay.

When no particular cause has acted upon the individual during the preceding night, the pulse is found to be most frequent in the morning: it diminishes a little in the course of the day, but only when the person continues to lie down, and remains free through the whole day from all external causes of excitement.

The variations in the pulse which have been referred by physiologists to a diurnal revolution, are for the most part the results of accidental circumstances, such as the taking of food, occupations, the position of the body, &c.

The pulse does not undergo any change about noon, notwithstanding that Cullen and M. Double have asserted the contrary to be the case: it only seems to be rather harder in the morning than it is in the evening.

Among the causes that affect the frequency of the pulse, the most common are food, and the temperature at which it is taken. A piece of bread eaten in the morning, in bed, increases the pulse two or three strokes in a minute; cold meat produces the same effect; but if it be taken with vinegar, either the pulse is not increased, or it is actually lessened in frequency. The same thing is observed after the ingestion of curdled milk or fruits. But if food be taken somewhat warm, the pulsations are immediately augmented to the extent of four or six beats a minute. Eight or ten spoonfuls of very hot soup increases the pulsation nine or ten a minute. At a common meal, the broths accelerate the pulse, boiled meats keep it at the same rate, and the vegetables with which a meal is generally terminated, also occasion a slight acceleration; thus it may be said in general, that by an ordinary dinner, the pulsations are augmented about ten or twelve strokes beyond the natural rythm. This acceleration, which is well marked, is kept up during the first two or three hours after the meal, according as the food is more or less easy of digestion; afterwards it diminishes, and in about five hours has completly disappeared.

If we lie down after a meal, the pulse returns much more speedily to its natural condition; but on the contrary, if we walk about or merely keep on foot, the acceleration becomes somewhat greater than as above stated, but the accelerated condition does not continue any longer than in the other case. When we eat cold meat, the acceleration does not commence until a quarter or even half an hour has elapsed, and this frequency is always proportioned to the consistence and quantity of the aliment ingested.

When, after eating meat, we drink a glass or two of cold water, or light wine, the pulse loses from one to four of the strokes which it had acquired from taking the soup; but this effect lasts only a quarter or half an hour.

Cool water taken repeatedly and in small quantities has no influence on the pulse, but in large quantities it makes it from two to four strokes a minute less. Cool beer at first acts like water, but the retardation of the pulse does not continue so long. Hot tea increases it from six to twelve a minute.

Upon inquiring into the effects produced upon the pulse by sleep, M. Nick found that it was diminished, and more so if sleep took place with the stomach empty than if food had been taken just before it. The pulse is slowest from midnight to two o'clock; it does not alter any when we are going to sleep, but becomes one or two beats less as we awake; but if we wake up startled, the beats are increased from five to fifteen a minute.

We shall not, for want of space, repeat what M. Nick observes in relation to exercise, baths, evacuations, &c., for which we refer the curious reader to the *Archives* for May 1831.

4. *Effects of certain substances when applied to the brain.*—M. Flourens read to the Royal Institute, Feb. 7, an account of some experiments lately performed with a view to learn what would be the effects of certain medicines applied directly to the surface of the brain. Our readers are acquainted with his experiments upon the ablation, as he calls it, of successive portions of the brain. 1. Having exposed the cerebral lobes in a rabbit, by removing the cranium and dura mater, M. Flourens applied some oil of turpentine to them. At first no effect was produced upon the animal; it continued to move about as usual. After some time, the turpentine, which was frequently applied, began to act, and the animal became agitated; it next appeared to be in a fixed and immovable attitude. After a still farther lapse of time, these phenomena became much more considerable. Sometimes the animal darted forward, at others it would turn round with extreme rapidity, and then become completely motionless; it had grinding of the teeth; its head trembled, and it often cried out; it might have been said to labour under a paroxysm of furious mania. While at rest, or motionless, the animal both saw and heard, but when in its frenzied fit, it neither saw nor heard, and would strike against any thing in its way, while darting forwards or turning round as above mentioned. It is evident that these phenomena are attributable to the increased influence of the cerebral lobes upon the rest of the economy. 2. Having exposed the cerebellum of a rabbit, M. Flourens applied some oil of turpentine to it. The animal not long afterwards began to run and

jump about with great agility, alternating these exertions with intervals of repose; the mobility became more and more frequent in consequence of reiterated applications of the oil of turpentine. The animal could see and hear, and was in possession of all its faculties. 3. Laudanum was applied to the cerebral lobes of a rabbit, and, as in the former instance, the application was repeated, at first, until the effects of the medicine appeared, and afterwards until those effects reached their highest degree of intensity. The animal now became so motionless, that neither pricking it, nor any other means resorted to, could induce it to change its attitude in the least; it had grinding of the teeth, and the whole body was agitated. Its head and the fore parts of the body were frequently bent backwards so much as to make it turn over on its back, when it would soon get up and keep perfectly motionless until another fit of agitation came on to cause it to repeat these motions. 4. The application of laudanum to the cerebellum of another rabbit, occasioned it to walk with extreme difficulty; it never ran; while walking it dragged itself along as if lying on its belly. 5. The difference in the action excited by turpentine and laudanum was therefore complete; the turpentine increased the locomotive powers while the laudanum produced a great torpor in them. When applied to the cerebrum, the turpentine occasioned the animal to dart forwards with rapidity, while the laudanum caused it to be retracted, and bent backwards so as to make it tumble over on its back. 6. M. Flourens applied laudanum to the cerebral lobes of a rabbit, and when the retraction and *immobility*, were at their height, he substituted oil of turpentine for laudanum. In a short time afterwards the immobility was not so complete, the animal took a few steps and then began to run; and although the immobility returned from time to time, the oil of turpentine evidently modified the action of the opium, and to a certain degree inverted the phenomena. 7. The effect of alcohol applied to the cerebrum and cerebellum was similar to, but less intense than that of spirit of turpentine.

As in M. F.'s former experiments upon ablation of successive portions of the brain, and the introduction of certain substances into the digestive organs, he found that the functions could be abolished or excited at pleasure; so the same results were obtained in these new experiments. Sometimes the function is excited, sometimes diminished. Thus, opium applied to the cerebral lobes abolishes their influence upon the rest of the economy, in the same way as gradual ablation of them is found to do, while turpentine, on the contrary, increases this influence.

These results, it is thought, may be advantageously applied to the management of cases of disordered mind, when it may be needful to augment or lessen the influence of the brain upon the economy.—*Rev. Med. March* 1831.

III. PATHOLOGY.

5. *Diseases of the heart.*—From an interesting paper on organic affections of the heart, by R. Wade, Esq. Surgeon, contained in the London Medical and *Physical Journal* for June 1831, we select the following.

Pericarditis, with inflammation of the internal membrane of the heart and valves.—Mr Juno, a stout man, aged 40 years, eighteen months ago was first attacked with dyspnœa and palpitations, which gradually subsided and left him apparently quite well until about six weeks ago, when his former symptoms returned. He complains now of constant pain at the scorbiculus cordis, extending to the left shoulder and elbow, and occasionally as far as the wrist: the pain he compares to the gnawing of a dog; he has also a sharp pain in the throat, as if some one were cutting it, with severe fits of coughing. The slightest exertion brings on intense suffering, beginning with a fluttering sensation in the region of the heart; the forehead becomes bedewed with perspiration, and the pulse small, quick, and jarring. The symptoms gradually augmented, when, about three mouths from the commencement of his present attack he was bled to 20 ounces, during one of the paroxysms of dyspnœa, &c.; much relief was obtained for a few minutes, but the patient complained of feeling very faint; in less than half an hour syncope occurred, from which he was not recovered. *Autopsy.* The pericardium had patches of lymph, both on its external and internal surfaces: it contained three ounces of bloody serum; the lining membrane of the right auricle was of a black colour, which extended to some distance along the venæ cavæ; the tricuspid and mitral valves were also of a dark colour and disorganized texture, forming a striking contrast to the healthy appearance of the ventricles; the aortal valves were much thickened; the lining membrane of the aorta was of a deep crimson, and generally spotted with osseous spiculæ to its curvature. No other marks of disease were observed.

Active dilatation of the left ventricle; passive of the right, and gangrene of the aortal valves.—A stout man, 42 years old, of temperate habits, had an attack of inflammation in the chest nine months before his death; the pain, which in the early stage of the disease was acute, and chiefly confined to the left side of the chest, had latterly, in a great degree, subsided; but he has, during the complaint, been constantly subject to dyspnœa and cough; the pulse was generally rather small, quick, and jarring. The patient complained constantly of an uneasy sensation in the region of the heart, with occasional palpitations; the action of the heart was very laboured. The patient was tapped for ascites two months previous to his death, after which a most harassing diarrhœa occurred, which soon exhausted him and caused his speedy death. *Autopsy.* The lungs, which adhered firmly on both sides to the pleura costalis, were loaded with dark blood, and serum. The right ventricle of the heart was passively dilated to more than double its usual size, its parieties being much attenuated; the left ventricle was actively dilated, its parieties in some parts measuring an inch and three-quarters in thickness. The mitral and aortal valves resembled parchment, and in one of the latter was a gangrenous spot as large as a pea, quite black, and of a disorganized texture; the other two were covered with warty excrescences, very similar to those often observed upon the glans penis. No other marks of disease were evident.

Passive dilatation of the right ventricle; both active and passive of the left, and extensive adipose depositions under the internal arterial tunic.—Stephen Miles, 50 years old, well formed, of temperate habits, by trade a currier. Has generally enjoyed good health, but has been subject for the last twenty years to an ulcer on the right inner ancle, which has seldom been healed any length of time; he has also experienced for the last year some degree of dyspnœa and palpitation after any uncommon exertion. August 25th 1830. Nine weeks ago, with no other premonitory symptoms, the patient awoke in the night with extreme difficulty of breathing and pain in the chest, which caused him to sit upright, and he has never since been able to bear a recumbent position for any length of time. The paroxysms of pain and dyspnœa are frequently so severe as to cause him to start up and rush across his room in a state of distraction; to relieve his sense of suffocation he is anxious to have all the windows and doors thrown open; a constant burning pain and throbbing are felt at the scorbiculus cordis, and the ensiform cartilage is forcibly elevated at every stroke of the heart. These paroxysms usually endure from three to four hours, when the urine, which is deficient and high coloured, is passed involuntarily. For a fortnight after the first paroxysm the man was able to pursue his usual employment; in a month the lower extremities became œdematous. The most ease is experienced when he sits with his elbows resting upon a table, and his head reclining forwards and supported by his hands: the pulse is small, frequent, regular, and vibrating; respiration short and anxious; there is extreme tenderness and strong pulsation at the scorbiculous cordis; the bowels are constipated; the fœces of a pale yellow colour; the surface of the body is cold, and the lower extremities, as high as Poupart's ligament, are enormously distended with serum; a constant and most distressing flatulence is experienced, and any thing taken into the stomach causes so much pain, that it is difficult to persuade the patient to eat. A short, hacking cough, with little expectoration, has been present from the commencement of the disease; the tongue is very red; occasional nausea but no vomiting is experienced. Death took place suddenly two days after the patient was first seen by Mr Wade. *Autopsy*, four hours after death. The muscles generally small and flabby; the deposition of adeps unusually great; the inferior extremities much distended with serum, and on the right inner ancle an ulcer, surrounded to some extent by a purple discoloration of the skin. The heart was excessively enlarged; the pericardium had its vessels, in several parts, minutely injected, and contained an ounce of serum; the right auricle and ventricle were passively enlarged to twice their usual size; the tricuspid valve had lost its transparency; the left ventricle was both actively and passively dilated; the left cavities of the heart were empty, but the right were distended with coagulated blood. The commencement of the aorta and pulmonary arteries was very much dilated. The internal membrane of the arteries was extensively diseased, in some few places by the atheromatous deposit, but chiefly from a deposition of fat immediately beneath it. The disease extended beyond the bifurcature of the iliacs; the innominata, subclavian, and carotid arteries were also very generally studded with a similar adipose matter. The brachial artery was examined at the inner edge of the biceps, and found to be in a healthy state, as were also the lungs and pleuræ. The mucous membrane of the stomach was generally of a dark red colour, much softened, and had an ecchymosed appearance, resulting from a minute injection of vessels, and not from extravasation, as is often supposed, as was evident upon examining it with a microscope. The mucous lining of the small intestines was loaded with blood of a dark venous colour, and was much softened. The liver was enlarged and hardened: the pulsations at the scorbiculus cordis were occasioned by the edge of the liver lifting up the ensiform cartilage at every stroke of the enlarged heart.

6. *Hemicrania.*—This disease is now generally considered to be a neuralgia, either continued or intermittent. The appellation neuralgia, however, does not designate the real seat of the disease, and is equally applicable to the painful affection of the face termed *tic douloureux*, or to odontalgia; it is proposed, therefore, by M. Piorry in a memoir upon the disease, contained in the *Journal Universel* for January of the present year, to denominate it sub-orbitary neuralgia. The opinions of this gentleman in regard to the seat of the disease are somewhat novel. He considers it to be a neurosis of the iris; confined, at first, to this membrane, or rather to its nerves; and subsequently extending itself through the various ramifications of the latter. It is characterized by disturbance of vision, followed by pains, either of the eyes or of the surface of the cranium, with nausea and vomiting. Its cause is the too long continued exercise of the eyes required in various professions. M. Piorry supports his opinions by various facts which have come under his notice, particularly by cases of habitual hemicrania, in which the disease has ceased upon the exercise of the eyes being remitted as soon as the affection of the sight peculiar to it was experienced, and others in which a cure was obtained by frictions of extract of belladonna upon the eyelids. M. Broussais, in noticing the memoir of M. Piorry, in the February number of the *Annales*, remarks that the opinions of the latter would be more correct had he added, that the iris may be affected also indirectly from an irritation seated in the stomach in consequence of the sympathy which exists between these parts. This reflected irritation readily explains the frequent production of hemicrania as a consequence of that morbid condition of the stomach denominated indigestion.

7. *Encephaloid Degeneration of an Entire Hemisphere of the Brain.*—This case is related by W. Davidson in the July number of the *Edinburgh Med. and Surg. Journ.* Few of a similar character are to be found upon record. The case is interesting in many points of view, and exhibits in a very striking manner the extent to which disease of the brain may arise before it becomes destructive to life. A man was admitted into the Lancashire hospital on the 17th of September 1830. His body was extremely emaciated; eyes sunk; countenance hollow and

haggard, with a remarkably wild and anxious expression indicative of suffering; complexion cadaverous, and of that peculiar clear straw-yellow colour which denotes the existence of organic disease. He has low muttering delirium and somnolency, accompanied with almost constant moaning and raving; puts out his tongue when asked, and appears more intelligent when roused, but relapses immediately on being left to himself. When asked if he feels pain, he mutters in a hollow tone, "there," placing his hand upon the left side of his head, which feels distinctly hotter than the right; his pulse eighty-four and of good strength. In this state he continued until the 30th of September, taking little food and occasionally sleeping for hours, in a very tranquil manner, when he gradually sunk into complete coma, from which he never recovered. He died on the 3d of October. Of the previous history of this patient nothing could be learnt excepting that he was a blacksmith by trade, almost constantly intoxicated, and that his intellects became impaired about six months ago. *Autopsy*, twenty-four hours after death. On opening the head the dura mater was found adhering to the arachnoid, which latter was opaque and thickened; the pia mater was very vascular and injected; it was infiltrated throughout with serum, and firmly adhered to the cortical substance of the brain. On attempting to remove the latter from the skull, a finger of the operator penetrated into a cavity in the lower part of the middle lobe of the left hemisphere, where it lies in the depression formed by the wings of the sphenoidal and petrous portion of the temporal bones. This cavity proved to be an abscess with undefined and irregular boundaries, much larger than the size of a pigeon's egg, and containing partly yellow purulent matter and partly small detached masses, which appeared to be clots of fibrin. Over the upper portion of this abscess there was a small ash-coloured indurated mass presenting a rugged knotty appearance, having many of the characters of tubercular matter in a crude state. The left hemisphere was diseased in a very extraordinary manner throughout its whole extent; its diseased structure communicating with the cavity of the abscess by a narrow aperture filled with yellow cheesy matter. Some portions o fthe hemisphere, particularly at its centre, consisted of opaque, white, homogeneous matter, rather firmer than healthy brain; others were softer, of a dirty ash-colour, and reduced to a diffluent pulp. The outer portions were more consistent, of a fleshy colour, and containing minute bloody points, and delicate red lines, converging like radii to a centre, and alternating with whitish parallel filamentous bands similarly radiated. This singular structure was imperceptibly lost in the diseased mass internally, and except in the immediate neighbourhood of the abscess, was separated from the surrounding healthy medullary substance by a well defined circle of the latter, in a state of complete softening—resembling both in colour and consistence broken down coagulated milk. This circle again was bounded above and externally by the surface of the convolutions, below by the pia mater (the cortical substance there being also softened) and by the abscess, and internally by a thin portion of the hemisphere in a sound state, and by the outer walls of the lateral ventricle.* The serous lining of this ventricle was partially coated with a delicate albuminous false membrane, under which it was rough and uneven, presenting an appearance of high vascularity and thickening, the vessels of the striated body ramifying beautifully over its surface, as if artificially injected. The fornix, walls, floor and posterior horn of the ventricle, and the left hippocamus major, showed considerable capillary injection, and were of much greater consistence than natural. The superficial cortical substance of both sides was remarkably firm, minutely injected, of a bright red colour, and adherent throughout to the pia mater. The right ventricle was nearly in a natural state. The pia mater in the immediate vicinity of the abcess was destroyed by ulceration, and the dura mater was spongy and perforated, like a seive, by innumerable small holes, under which the internal table of the scull had suffered from caries. All the viscera of the thorax and abdomen were healthy, excepting the liver, which was greatly enlarged, and adhered to the diaphragm and stomach by loose cellular bands. When cut into, it presented that particular form of disease denominated pale induration with enlargement.

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* The whole hemisphere became converted into a semifluid pulp, mixed with portions of a wine-lee colour, by a night's exposure to the air.

8. *Hysteria.*—We copy the following cases from the *London Medical and Physical Journal* for July 1831. They are reported by Dr Darwall, of Birmingham, with the following introductory remarks.

"That many of those anomalous symptoms which have been comprehended under the title of hysteria depend essentially upon some affection of the brain and spinal medulla, seems now to be generally acknowledged. It is not, however, very frequently that such evidence can be obtained of the correctness of this opinion as the two following cases afford. In both, there was manifest affection of the spine: in both, symptoms were present which are commonly known as nervous; and in both, the latter disappeared as the former affection diminished."

A lad fourteen years of age complained, January 10, 1831, of dizziness, pain across the forehead, noise in the ear, coming on suddenly and preventing his hearing; dyspnœa; palpitation of the heart; no particular sound with the stethoscope; much tenderness over the region of the heart, and over the left side; spirits very variable, at times exceedingly low; pulse small. Spine much curved to the right side. Great tenderness over the seventh and eight dorsal vertebræ. Bowels costive; urine natural; appetite good. Has been unwell for the last twelve months, and always felt very giddy at night. Twelve leeches were directed to the tender part of the spine, and a purge of cal. and rhubarb. The reclining posture to be preserved by the patient without any intermission longer than half an hour at a time, nor more than two hours during the whole day. To walk out daily. (?) Jan. 13. Has had less palpitation at the heart. *Still* tenderness of the spine and at a spot between the heart and clavicle; pressure here excites the heart's action, although respiration is very strong beneath. No cough. The calomel had brought away much offensive dark coloured feces. He was directed an infusion of colomba, gentian and senna āā half an ounce, and five grains of the blue mass every other night. On the 3d of February, dyspnœa much the same. Scarcely any palpitation or dizziness since the former date. No tenderness over the heart. Bowels open; appetite good; spirits more equable. Spine not so much distorted; the eleventh dorsal vertebræ much more depressed, however, than the rest, and tender, as is also the twelfth. A blister was directed to the dorsal portion of the spine. March 10. In every respect better. Curvature of the spine nearly gone. Medicines as before. April 8. Says he is quite well; has no palpitation excepting after considerable exercise; scarcely any curvature of spine.

A female 21 years old, an attendant in a shop. Feb. 15, 1831. Has headach, giddiness, tinnitus aurium, palpitation of the heart, and dyspnœa, but not commonly any cough; flatulence after eating; is low spirited. Her bowels are costive, being sometimes three and four days without evacuation. Catamenia regular in time, but last only two days, and are very black and painful. Slight leucorrhœa, urine hysterical, at times very scanty and turbid, at others very copious and limpid. Pain over the region of the heart, with considerable tenderness to the touch. The spine curved laterally. Tongue reddish and dry in the morning. Pulse small and rapid. No tenderness of spine. The latter has been curved four or five years, and the other symptoms have been experienced during the last twelve months. Respiration with the stethoscope perfectly natural. Directed to retain the recumbent posture with intervals not extending beyond half an hour; to walk out daily; mercurial purgative with infusion of columba and the aromatic spirits of ammonia. 22d. Patient thinks herself better; symptoms still present, though perhaps in a less degree. Bowels open twice a day; evacuations very offensive; catamenia occurred this morning, but without pain, and less black than usual. Same remedies. March 1. Better generally; has had much less pain at the heart and less tenderness; tongue cleaner; less leucorrhœa; pulse 84; much less palpitation. Same remedies. 8th. Still better. Less swelled after eating; bowels open, evacuations dark coloured and offensive. Tenderness over the heart quite gone. Directed comp. decoct. aloes with infusion of camomile and cascarilla āā half an ounce three times a day, with five grs. blue mass every second night. 15th. In every respect better; evacuations rather scanty, still dark coloured and offensive. Considerable flatulence; appetite better; pulse 84, not so easily hurried; curvature of the spine less. Same remedies. 22d. The catamenia have been present, only lasting one day, and very scanty, black and painful. Bowels moved every second day; appetite good. This morning considerable palpitation of the heart, with irregular pulse; spirits very low; much tenderness over the seventh dorsal vertebra. Directed twelve leeches to the painful vertebra; purge of sulph. magnesia. 25th. Has had very little palpitation since last date; spirits better; bowels open twice or three times a day; pulse 92, regular; no tenderness in the spine; appetite good. Same remedies. 29th. Breathing still difficult, but only when moving. Says she is much better; has no giddiness, headach, nor noise in the ears; palpitation only when she walks; bowels opened by the pills, but not otherwise. Same remedies. This patient still remains under treatment; the spine, though still very much curved, is far less so than at first. It will probably, from the length of time its duration has continued, never entirely recover its proper direction. It is, however, worthy of remark, that while in the first case, every symptom disappeared with the return of the spine to its natural state, and when the tenderness and palpitation were lessened by leeches to the painful vertebra; in the latter, one of the vertebræ became tender at the very time there was an aggravation of the general symptoms, which were, as in the first case, relieved by local depletion.

9. *Mastodynia.*—The dependence of muscular pains, occasionally, upon an affection of the nerves at their roots, has not elicited such general attention as might have been expected, since the appearance of Mr Teale's views on this subject. The following cases obtained from the same source as the two preceding, are additional evidence of the correctness of this gentleman's opinions.

Mrs Mascall, aged 25 years, has suffered very severely for a year with pain in the breast, but there was neither tumor nor hardness. There was much tenderness in the superior dorsal vertebræ. Dr Darwall first saw her on the 14th of January, when he directed her an aperient. On the 17th she returned; the medicine had operated well, but she experienced no relief in the breast. She was ordered to be cupped over the painful vertebræ, which was done the same day: the pain was relieved during the cupping, and she has had scarcely any pain since. Various dyspeptic symptoms under which she laboured, are also much relieved. February. Has had no return of pain in the breast: has not been so free from pain for twelve months. Convalescent. No subsequent return of the symptoms.

April 1, 1830. Mrs Norton. Has had pain in the breast for four months, with distinct tenderness in the fourth dorsal vetebra. A blister was applied to the spine, and the pain ceased immediately after it rose; four days subsequently she was entirely free from pain. Dr Darwall saw this patient after the lapse of some weeks; she had had no return of the symptoms. The Doctor states that he has under his care, at the date of this communication, another case, the subject of which is a servant girl who had suffered from mastodynia for several months. There was considerable tenderness in the fifth and sixth dorsal vertebræ, to which part eighteen leeches were applied. The pain in the breast ceased for several days, but had within a few days again returned, in consequence of which she remained under treatment.

10. *Insidious form of puerperal fever.*—A paper on this subject is contained in the *Bibliothèque Médicale*, for December last, by M. Le Gallois, which it was our intention to notice in a former number—not so much from the novelty of the case which is detailed, but from its bearing upon the question of the connexion between the periodicity of morbid phenomena and inflammation. In the month of August 1828, M. Le Gallois was requested to visit at Charenton

a female who had been recently delivered. Her labour had been without any thing remarkable; but subsequently she experienced every evening an exacerbation of fever preceded by a chill. Excepting this, her case presented no symptoms of any moment. The periodical return of the fever, and its being ushered in by a chill, induced M. Le Gallois to believe her labouring under an attack of intermittent fever, especially as this disease was then epidemic at Charenton. He in consequence directed her the use of sulphate of quinia, at first in the dose of six grains, the quantity being subsequently augmented. The disease, however, increased; signs of intestinal irritation became manifest; peritonitis succeeded, and finally the patient died. M. Le Gallois believes that the fatal termination of this case was due to the treatment he had prescribed. Of this we think there can be little doubt. We have ourselves seen several cases of peritonitis, which in their earlier stages presented no other symptoms than chills and fever, returning at regular intervals, but which soon gave place on the exhibition of bark and other tonics to intense pain, tenderness and swelling of the abdomen, profuse sweats, &c. followed in a very short time by death. M. Le Gallois, does not believe, however, that puerperal fever is the effect of peritonitis, but that it results from the infection of the blood by a particular morbid principle—the lochia in a purulent condition. This opinion he has explained and developed in a memoir presented to the Royal Academy of Medicine of Paris. In evidence of its truth he alleges that in cases of puerperal fever pus has been found in the veins. This, however, is certainly placing effect for cause. That in most cases puerperal fever depends upon peritoneal inflammation, we have, we conceive, the most conclusive evidence; that it does not in all, we admit; an irritation of any organ is, we conceive, as capable of producing fever during the puerperal state as at another period.

11. *General inflammation of the arteries.*—The existence of acute arteritis is disputed by many. The following case, which appears to be of that character, deserves to be generally known, in order that in parallel instances the attention of pathologists may be directed to the state of the arterial system. It is copied from the *Journal Universel* for April 1831.

A negro, 28 years old, came under the care of M. Serres, in consequence of a painful swelling of the left testicle, which gave way to leeches and fomentations. Two or three days subsequently he complained of considerable difficulty and frequency of respiration, and some expectoration stained with blood; his pulse was very frequent and small. It was stated that he had been delirous the preceding evening. The stethoscope evinced feeble and embarrassed respiration, but did not indicate whether this arose from pneumonia or pleurisy, or acute tubercular inflammation. He passed a restless night, and next morning was worse. His short laborious breathing seemed to indicate severe pulmonary disease; auscultation, nevertheless, gave only negative signs. The feebleness of the pulse had increased, and it was still very frequent. As on the preceding day, the diagnosis being obscure, the physician merely prescribed low diet and cooling drinks. On the third morning the patient was threatened with suffocation. Various sounds, as sibilant rattle and sonorous rattle, were heard in the chest; but neither crepitating rattle nor bronchial respiration; neither was there any dulness on percussion. The radial artery had ceased to beat. The effect of venesection was tried, and two ounces of blood were obtained with difficulty; in twenty minutes the patient expired, with no other symptom than hurried and difficult breathing, and frequent feeble pulse. The tongue was natural in appearance from first to last. *Autopsy*, 40 hours after death. The weather in the interval frosty. There was no rigidity. A good deal of bloody serum was discovered in the lungs, and at their summit there was an intense red coloration; but the air penetrated them with facility. They were free from tubercles. The bronchial membrane was red. Each cavity of the heart contained a moderate quantity of blood. The lining membrane was of a livid red colour, particularly near the aortic valves; and this colour was also observed in a part of the muscular texture of the parieties. The red discoloration extended into the aorta and pulmonary arteries. In the aorta, as far as its division into the iliac arteries, the colour of the inner coat was carmine red, its surface not glistening but dull; it could be easily detached from the middle coat, and in this coat arteries were seen injected with scarlet blood. The iliac, the femoral and tibial arteries presented the same colour, but the tint was deeper; the common carotids and subclavians were in the same state; but in none of these vessels the membrane had lost its firmness of texture. The temporal artery was natural. In the inferior vena cava there was also some discoloration, but much more faint. The head was not opened, as the bones were preserved to make a skeleton. The relator of this case, Mr Camus, insists that it is a genuine instance of acute arteritis, and that this is proved by the redness of the inner coat of the arteries existing without blood in them to account for the colour on the principle of imbibition after death, and by the redness being accompanied by softening of the texture of the inner coat. Although this case is certainly a more marked one of acute arteritis than we recollect to have seen recorded, yet it may still admit of some doubt whether this was its actual character. The dying of the inner coat of the arteries may have been occasioned by fluid blood in the vessels immediately after death, the blood afterwards passing into the veins, and notwithstanding the weather is stated to have been cold, the interval which occurred between death and the examination was such as to render equivocal the real cause of the softening of the inner coat—whether it resulted from preceding inflammation, or was merely a cadaveric phenomenon.

12. *Plica affecting the hair on the pubes.*—A curious case of that peculiar morbid condition of the hair denominated plica, was related by M. Ozanam to the Royal Academy of Medicine of Paris at its session in January 1831. It occurred in a married female aged 25 years. The mons veneris was covered with an enormous tuft of very long and coarse hair, and so completely entangled that coition was rendered impracticable. The husband was desirous on the first night of his marriage to remove this barrier to his enjoyment by cutting off the hair with a pair of scissors, but the pain caused by the first attempt to remove, in this manner, the matted hair, as well as the discharge of blood from its cut ends, forced him to desist. M. Ozanam was called in, and directed sulphurous baths and frictions with the mercurial ointment, but these were productive of no good effect. He succeeded in removing the diseased hair, however, by the use of the depilatory paste employed by the people of the east, termed *rusma*, and composed of the yellow sulphuret of arsenic, the sulphate of copper, lime, soap and water. After this he caused the parts to be anointed with a paste composed of the sulphuret of potash, chloruret of lime, animal charcoal and lard. According to M. O. tenia may be successfully treated in the same way.

13. *Pleuro-pneumonia not evinced by stethoscopic signs, but which were detected by mediate precussion.*—A young man was received into the Hotel Dieu with cough, hurried respiration, but without any rattle or particular resonance of the voice being detected by the stethoscope. Percussion by the pleximiter evidenced a difference of sound to the left and posteriorly. This, in some measure, disappeared when the patient was placed on his abdomen. The disease was pronounced to be pneumonia, and was removed by an antiphlogistic treatment. M. Laberge, who relates this case in the *Journal Hebdomidaire*, is of opinion that tubercles may be detected by percussion, when no indication of them can be obtained by the stethoscope.

IV. THERAPEUTICS.

14. We are indebted for the following interesting cases to Dr Clark, to whom they were addressed by his relative, Aug. H. Clark, M.D., of New Orleans.

"The profession is indebted to Mr Teale for a valuable and highly important improvement in a class of diseases which has often baffled its efforts, and even brought it in a measure into disrepute. I allude to the neuralgic affections, which Mr T. informs us depend upon irritation of the spinal chord and sympathetic ganglia; and remedies directed to the removal of the latter are found to be attended with the happiest results. These observations are in a measure confirmed by the result of two cases which lately fell under my care, and which I beg leave to detail to you, requesting, at the same time, that, in the event of your approval, you will cause them to be inserted in the North American Medical and Surgical Journal.

Case 1. *Neuralgia of the bowels.*—On the night of the 23d January I was called to George N., a coach driver, aged about forty years, afflicted with violent colic, under which he had been suffering for the last two days, during which time a variety of domestic remedies (chiefly opiates) had been administered, but without the slightest relief. Before I was sent for a paroxysm of uncommon severity had seized him, and I found him complaining of agonizing pain in the back, shooting up into the bowels, extending even into the thorax, and producing at times very considerable dyspnœa. On making pressure on the abdomen, the part immediately beneath the hand was relieved, but the pain appeared to accumulate in some other part of the belly. His pulse was considerably excited, tongue furred, and bowels constipated. He attributes this attack to exposure to cold and wet a few days since, during a drive of some miles. Has been subject, however, to attacks of colic for the last three or four years.

Recipe.—Venesect. 16 oz. and a dose of castor oil, with fomentations of hot vinegar and water throughout the night.

24th. Passed a restless night. Medicine operated scantily. Fever shaken, but the only symptom relieved is the dyspnœa.

Recipe.—Calomel 10 grs.; Pulv. Rhei 15 grs.; a large sinapism to abdomen, and drinks of lime mucilage and balm tea.

Evening. Symptoms nearly the same. Notwithstanding the free operation of medicine, the sinapism relieved him for a time, but complains of increasing pain in back. It now occurred to me that this was a case of irritation of the spine, in consequence of which I examined his back in the manner directed by Teale. On pressing the parts opposite the lower dorsal and upper lumber vertebræ, the patient flinched, and cried out "that was the spot." He then informed me that about three years since, while employed in a cotton press, a bale of cotton fell against his back; since which time he has been subject to attacks of colic on exposure. Does not recollect ever having suffered from them before the receipt of the injury. The treatment now was plain.

A blister was applied to the small of the back, and directed to be kept on at night.

25th. Visited him this morning and found him sitting up, free from pain, but yet complaining of soreness, which however does not at all incommode him. Informed me that so soon as the blister began to draw the pain subsided.

Recipe.—Advised the blistered part to be kept open with savin oint. for some days, and attention paid to his diet, &c.

In a few days he was again labouring in his vocation, and from that time until now he has not had the slightest return of colic, although exposed to every vicissitude of weather. So anxious is he to prevent a recurrence of it, that, in conformity with my advice, and since the drying up of the blister, he has kept up a constant irritation of the part with tartar emetic ointment.

Case 2. *Neuralgia of the arm and mamma.*—On the 15th of January I was requested to see a young married lady, who, I was informed, had been suffering for some time past under rheumatism of the chest, for which she had taken a variety of remedies without the slightest relief.

On examination I found considerable tumefaction of the right mamma, with tenderness on pressure, and feeling of tightness across the chest at each inspiration something like asthma. There was also numbness of the right arm, extending from the axilla to the tips of the fingers, incapacitating the patient from the use of her needle, for the free motion of it produced pain in the chest. Pressure was made on the cervical vertebræ, and very considerable pain being experienced, the course to be adopted was evident.

Recipe.—A blister was immediately applied over the painful part, with directions to be kept on for the space of twelve hours.

16th. The blister drew well, removing almost entirely the numbness of arm. Can move it now without pain to the chest. Mammæ still tender, but the asthmatic feeling entirely relieved. Directed blister to be dressed with savin ointment. From this time till the 20th blister was kept running, and my patient improved rapidly: the breast became speedily smaller and less sensitive; the arm recovered its sensibility and power, and the dyspnœa was entirely relieved. About this time she resumed her needle, and made use of her arm in ironing, without the slightest inconvenience. Blister was now healed and the parts beneath bore pressure as easily as any other portion of the spine.

This lady has since been under my care for acute bronchitis, which proved of considerable obstinacy, but her neuralgic affection has not in the slightest degree returned.

Since writing the above, another case of neuralgia has come under my observation, manifesting itself in wandering pain in the bowels, pain at the epigastrium, and cough. The patient, a married lady of twenty-eight years, attributes all this to a fall upon the back when getting out of bed: there was very considerable pain in the spine about the neighbourhood of the four lower dorsal vertebræ. The treatment was similar to the above, with the addition of cupping, and in less than a week all her bad symptoms vanished.

AUG. H. CLARK, M.D.

New Orleans, May 25, 1831.

15. *Case of successful treatment of Snake-bite by cupping-glasses.*—(Transactions of the Medical and Physical Society of Calcutta, Vol. 4.)

Mr. Clarke, assistant surgeon in the Bengal service, has related the following instance of the successful application of Dr Barry's treatment against the effects of poisons introduced into an external wound.

A fine healthy youth, fourteen years of age, was bitten at 10 P.M. near the bend of the right arm, by a snake, the species of which could not be ascertained. He was immediately conveyed to a set of "snake doctors," who, after practising their quackery for five hours to no purpose, directed him to be taken to a European surgeon. Mr Clarke, who saw him immediately after the native doctors gave him up, found him affected with stupor, insensibility, laborious breathing, extreme feebleness, and rapidity of the pulse, great expression of anxiety and distress, constant efforts to expel frothy matter from his throat, and inability to articulate. The wound was situated a little below the bifurcation of the vein at the bend of the arm, extended horizontally half an inch under the skin, and a slight elevation was perceptible over its course, which was paler than the surrounding integuments, so as to present the appearance of a splinter of fur under the skin. The adjacent integuments, to the distance of two or three inches, were tense and painful. The wound was immediately scarified, and a ligature applied above the elbow. At the same time two attempts were made to administer ammonia, but without success, as the muscles of deglutition were thrown into violent convulsive action, producing increased difficulty of breathing. Mr Clarke then resolved to try the effects of cupping-glasses, and immediately applied one in the usual manner. After it had been applied for an hour and a half, with occasional short intervals, a manifest improvement had taken place. This was several hours after the bite. He was more composed, and expectorated less; the pulse was fuller, and the sense of suffocation less urgent. The cupping-glass was now removed, as very little blood had been drawn by it; and ammonia was administered from time to time, but at first with difficulty. In the course of another hour he could stand up, and soon afterwards he was able to walk. Twelve hours after the bite, the bandage having been still kept on the arm, he complained only of drowsiness and difficulty in articulation. In twenty hours the drowsiness continued, the eyes were dull and injected like a person recovering from intoxication, and there was indistinctness of vision. The arm, from which the ligature had been removed a short time before, was painful near the puncture, and on the seat of the ligature. Next day he was well, after a long and refreshing sleep.

We are indebted for this article to the *Edinburgh Medical and Surgical Journal* for July 1831.

16. *Observations concerning the Bark of the Root of the Pomegranate Tree, as a remedy against the Tape Worm; by Richard Pearson, M.D.*—In consequence of the strong testimonies recorded by various medical practitioners, attached to the East India service, in favour of the bark of the root of the pomegranate tree (Punica Granatum) in cases of tape-worm, I was induced, about two years ago, to prescribe it to several patients who had voided portions of that worm, and who had previously taken the oil of turpentine and other anthelmintics with little benefit. I prescribed the powder of the dried bark of the root (as recommended by Mr. Breton in the London Medico-Chirurgical Transactions, vol. xi.) in doses of from half dr. to two scr., to be repeated every hour until it should produce some powerful effect; but to my disappointment, in one case it produced no sensible effect whatever, and in two other cases small portions only of the worm came away after its exhibition. The remedy has proved equally unsuccessful in the hands of my friend and colleague Dr Eccles, senior physician to the Birmingham General Dispensary. The bark prescribed by both of us was obtained from London by the principal druggist in this town. To account for these failures I am led to suspect, either that the bark which we used was from the root of the pomegranate tree of British growth, or that it was some other bark in lieu of the pomegranate bark. If it were the bark of a pomegranate tree cultivated in this country (England) it is easy to account for its want of efficacy; for, to possess its medicinal properties in full perfection, the pomegranate tree must grow *in a hot and dry climate.* When cultivated in the gardens of our cold and humid climate, it degenerates—it becomes inert. But perhaps the bark prescribed by Dr Eccles and myself was not the genuine drug; for Professor Richard, of Paris, states, that the bark of the barberry (Berberis Vulgaris) is sometimes fraudulently substituted in commerce for the pomegranate bark. Under these circumstances, I would suggest that no pomegranate bark, except that which shall be imported from the East Indies, be offered for sale by the druggists. Mr Breton has shown that this bark loses nothing of its virtues by drying; hence it may be easily sent from India reduced to powder, and put into bottles well corked and sealed.—*Extracted from the Edinb. Med. and Surgical Journal.*

17. *Inflation for Colic.*—We derive the following article from the Medico Chirurgical Review for July 1831.

Mr John King, of Irvine, has promulgated a sovereign remedy for the colic, in the last number of our contemporary of Glasgow. It is inflation, or blowing up of the intestines, per anum. He conceives that it was a happy thought of those who hit upon this remedy in the hour of danger, after all their other efforts had proved nugatory. "It paralyses, as it were, the constricted fibres of the bowels, and may be used in the following cases, if not with complete success, at least with advantage, viz.—the various kinds of colic, proceeding from torpidity, spasmodic constriction, viscid meconium in new-born infants, impaction, bezoars and other intestinal concretions, volvulus or intus-susceptio, and some cases of hernia!" This is a very encouraging list—very encouraging indeed. Mr. King relates a case in which inflation proved successful, but we need not do more than allude to it. He secured the bladder of a glyster-bag to the nozzel of the bellows, introduced the pipe into the rectum, and puffed away with the best possible effects. Mr King conjectures that inflation would have been beneficial in some other cases, but he gives the particulars of no more. He regrets that the remedy should have fallen into disuse; had it been a good one it probably would not have done so. We do not ourselves perceive the advantages of air over fluid as an injection, and many individuals with colic would rather let air out than take it in. We say nothing of the *spectacle* of a learned physician puffing up a person's anus with a pair of bellows. The remedy may be one of great importance for any thing we know to the contrary.

In another article of the same number of his Review, Dr Johnson makes amends for the tone of levity of the preceding lines, and calls the attention of his readers to another communication on the subject of the above mentioned remedial plan, contained in the 14th number of the Glasgow Journal. This communication is from the pen of Mr Blacklock of Dumfries. Dr J. remarks, that "so long ago as 1820, Mr Blacklock communicated to him the fact of his readily removing intus susceptions (where no adhesions had taken place) in the dead body, by means of injections of air per anum. Since that time, he and other practitioners in his neighbourhood have frequently resorted to this process, in cases of obstinate obstructions of the bowels. One of these cases was Mr Blacklock's own son, then about three years of age, who, during nine days, remained without any passage through the bowels, notwithstanding the employment of various purgatives, and numerous enemata. Recourse was ultimately had to inflation, when the little patient cried out for the commode, and had a free evacuation. After a few minutes the inflation was repeated, and was soon followed by another fœcal stool. The boy rapidly recovered, and is now living and in good health.

"The great inconvenience, or indeed misery, produced by flatulence in the stomach and bowels is, perhaps, a less valid objection to the artificial inflation now under consideration than might at first sight appear. In the first place, it is to be remembered, that the gas disengaged in the primæ viæ, during indigestion, and other disordered states of the digestive organs, is very far from being identical with common atmospheric air. This has been proved by chemical analysis, but still more certainly by common observation. The gases generated in such conditions of the alimentary canal, are not only various, but many of them appear to act as acrid, or at least deleterious poisons, during their stay in the first passages. They are more distressing, also, in proportion as they are situated higher up in the alimentary canal. In the stomach and duodenum, they are far more inimical to our feelings and health, than in the small intestines—and in the *latter*, they are infinitely more difficult to bear than in the colon. The morbid and indescribable feelings resulting from the extrication of gas in the stomach, are very imperfectly known, and not at all appreciated, in a proper manner, by medical practitioners in general. Even where the eructated gas is perfectly inodorous and tasteless, its presence in the stomach produces, in many instances, the most terrible sensations. But it is the nature of these noxious gases to keep their station resolutely in the localities where they are generated, by producing spasmodic constriction of the tubes both above and below them. They are then pent up, and their presence not always, or even often, suspected or known. These, and many other considerations which we could adduce, may lead us to suppose that the introduction of common atmospheric air into the colon, or even into the small intestines, will be unattended with the inconvenient or injurious effects resulting from aerial or gaseous products of disordered digestion. If medical men were to make experiments on their own persons more frequently than they do, their patients might be benefited, and their own sphere of knowledge very much extended. It would be well worth while to try the substitution of common air for warm water, in cases of constipated bowels; for if the former fluid answer as well as the *latter*, the facility of its employment in all situations would be an immense advantage."

Dr King's case was published entire in the *London Medical Gazette* for 28th May 1831, and the result obtained induced Mr Charles Fluder of Lymington, to try the plan in a case of Ileus then under his care. His account of the case is contained in the number of the same Gazette for June 25. Mr. F. had used ineffectually several active remedies, and thought he was justified in fearing that death would soon close the scene. Under these circumstances Mr F. resolved on inflation. He followed the plan adopted by Mr King, namely, by means of a common pair of bellows, a bladder, and glyster pipe. The effect, as it regarded the ease of the patient from pain, was instantaneous, and he continued the inflation till the whole of the abdomen became somewhat tense. From this moment the nausea and vomiting which had harassed the patient throughout, ceased entirely. The pain became diffused; she described it as very trifling, and altogether different from what it had been; the countenance, almost the facies Hippocratica, was already re-animating; the flickering flame of receding vitality was rekindling, and Mr F. was himself fully satisfied that the obstruction was moved. Considering, however, that there probably was an increased degree of torpidity in the lower bowels, having been deprived for eleven days of their accustomed stimulus, the fœces, Mr F. gave, soon after the inflation, a moderate dose of senna and salts, which was followed in about two hours by a copious scybalous dejection. From that moment every thing went on favorably, and a simple gentle aperient, repeated at intervals as occasion required, constituted the whole of the subsequent treatment.

18. *Treatment of Hysteria.*—In one of his lectures delivered at St Thomas's Hospital, Dr Elliston spoke of a case of what he calls Hysteria. The disease occurred in a young woman 25 years of age, and arose from the absence of her sweetheart. "This," says Dr E. "had such an effect upon her, that it not only threw her into fits, but it made her lisp—made her very peevish and snappish even to me." "It was a case of Hysteria, which affected particularly the right side of the body, and the face was drawn to that side from the violent contraction of its muscles. The right hand was clenched, with the thumb bent in upon the palm, and the right arm gave more resistance in the fit than the left. She was the girl who I told you said *toe* for *so*, and *yet* for *yes;* in fact, speaking like a child."

Dr E. remarked, that the treatment indicated was decidedly anti-inflammatory. She was cupped, in the first place on the loins, to a pint; she was once cupped on the occiput to the same extent, and well purged every day with a clyster of oil of turpentine, consisting of three ounces to sixteen ounces of gruel. This was given her the day after her admission, the 4th of February, the 5th, and so on for several days. Under this treatment the fits became not only very slight, but very rare, and at last ceased entirely, so that the treatment was left off. She then took house diet and tonic medicine, a drachm of subcarbonic of iron three times a day. She recovered her speech, and could say *yes*, *so*, exactly like other people. She was no longer peevish, and became perfectly well, though her illness had existed two years.

"You will find this," Dr E. added, "a very successful mode of treating many cases of Hysteria—that is to say, the free loss of blood from the occiput or the loins, and perhaps from the arm; but those are convenient places to cup, and the glasses were accordingly applied there; and as the disease had this particular exciting cause in her, I was anxious to cup her in those quarters. The oil of turpentine, too, is certainly a most useful remedy in the treatment of hysteria: it unquestionably has far more effect, I think, than mere purging: it seems to have a peculiar influence, I think—I will not say what—upon the nervous system."—*London Medical Gazette, June* 1831.

19. *Phthisis cured by living on raw turtle.*—We extract the following remarks from a work which has lately appeared in London.—Dr Hamilton's History of Medicine.

"However the art of the cook may have succeeded in corrupting the natural qualities of the flesh of the turtle, by the addition of powerful condiments and inflammatory sauces, so as to bring upon it an unmerited stigma; in its unsophisticated state, it is perhaps one of the most nutritious, salutary, and restorative articles of diet in existence. It was most satisfactorily proved in a case which fell but a few years since under the observation of the writer of this volume, and can no where find a place more appropriate for its introduction than the present. A gentleman, resident in one of our oldest and most frequented islands in the West Indies, having, from a long continued course of free living and late hours, contracted a complaint, to all appearance confirmed phthisis, accompanied with excessive emaciation, debility, teasing hectic cough, and all the other ordinary symptoms—when wasted to but a shadow of his former self, was advised, as a last, though almost hopeless, resource, to try change of air, and endeavour to glean health from the sanative breezes of the uninhabited island of Testigos, on the coast of the Spanish main. This is a low sandy island, destitute of human habitations, and only resorted to at particular seasons by fishermen, who come in quest of the turtle, which frequents its shores, unintimidated by the sight of man. Testigos could thus boast no vintners' cellars or luxurious taverns, to debauch the appetite and sap the constitution—no social parties to tempt to indulgence—no boon companions to betray into intemperance: nature alone presided within its solitary bounds, and compelled obedience, however reluctant, to her salutary laws. So deplorable was the condition of the invalid, and so utterly hopeless appeared to be his chance of recovery, that, on embarking for that island, which he hardly expected to reach alive, he carried a supply of planks and tools along with him for the double purpose of constructing a hut to shelter him in life, and afterwards form a coffin to receive him in death. Arrived at Testigos, he led from necessity a life of primeval regularity and simplicity, rising with the orb of day, and courting the balmy influence of sleep, as soon as the shades of evening fell—his food was the turtle's flesh, uncontaminated by the arts of the cook, which tempt the palate but undermine the health—his drink the simple element, uninflamed by the admixture of deceitful wine or inebriating spirit. After thus living in patriarchal simplicity for some few months, he returned to his astonished friends, so altered in appearance, and so renovated in health, that even those who had been most intimate with him hardly knew him upon his arrival, and could with difficulty be persuaded that the robust and ruddy-complexioned being before them, was the same who had so recently parted from them a living skeleton —a wasted form."

20. *Treatment of Croup.*—Dr Goodlad, of Bury (England), has published a paper on this subject, in one of the numbers of the North of England Medical Journal. From this paper we shall make a few extracts.

"In this complaint every gradation may be traced by placing the ear within a short distance of the patient's chest, from the brazen like sonorous cough, to the gentle stridule heard more faintly as the patient approaches to convalescence, and is able to draw a full and slow inspiration. On the other hand, if there be rattling conjoined with a disposition to sleep, pale or livid lips, and cold extremities, effusion has taken place; death must follow, and will be accelerated by the remedial means we should otherwise employ. But so long as the attack is accompanied with a high sounding cough, without rattling, the mischief, whatever it may be, is not irremediable; I would go further, and declare it ought to be arrested, and feel a perfect conviction, in the majority of cases, that it may."

"Among the poorer classes in Lancashire who seldom call in assistance for croup until all chance of recovery is destroyed, I have never yet seen a case terminate fatally, without an effusion in the bronchia being conspicuous several hours before death, and I am much disposed to attribute such an event, where it has happened, to the remedies made use of, rather than consider it a natural termination of the disease; particularly as some of those commonly in use are well calculated to produce it.

"Amongst these, the warm bath is one of the most active, and at the same time, most injurious; and I cannot imagine how any one, who has once witnessed its effects, can again recommend it in croup. It is, in my opinion, so decidedly hurtful, by quickening the circulation, that I should interdict its use in almost all inflammatory cases. The warm bath, I think, is never useful unless prolonged until faintness is produced; and in the early stages of inflammatory complaints, it is often impossible to produce this effect, until the heart beats more than 130 times in a minute, which is a degree of excitement I think unwarrantable. If resorted to later, effusion is brought on sooner than it would otherwise supervene; and many practitioners could, I think, call to mind cases where its use has been followed by unexpected death: the vessels, previously emptied perhaps by bleeding, having given way, and apoplexy supervened."

Mr Goodlad confounds the warm with the hot bath—the latter is exciting, the former not. Mr G. condemns emetics, and considers nauseating doses of tart. em. as doubtful remedies in croup. He found blisters injurious when applied early, and near the trachea. According to him, two indications must be attended to in the cure of croup; first, to subdue the inflammation of the wind-pipe; the other to relieve the oppressed circulation. "The causes which produce croup, its symptoms and progress, alike indicate the necessity of blood-letting, and this remedy, in comparison with which all others sink into insignificance, should be immediately resorted to. Any quantity of blood may be drawn by leeches, and the local complaint, in almost all cases, be subdued by them; for if one crop of leeches do not remove it, others must follow until the breathing becomes free, or the child so faint, that further depletion would be unsafe. This mode of taking blood by emptying the vessels which are inflamed, will, it is evident, afford relief, with least expense to the constitution; but when the complaint has existed many hours, and the jugular vein becomes alternately distended and collapsed, during each inspiration; when the angles of the mouth are drawn downwards, every muscle of the neck brought into action, and the breathing consists of a series of gaspings, there will not be time afforded for leeches, and not a moment must be lost. The external jugular vein should be immediately opened with the lancet, though this operation is sometimes exceedingly difficult, requiring a quick eye and a prompt hand to catch it between each inspiration."

Mr Goodlad thinks that it is safest in general to unload the general circulation where that is requisite from the system at large; and treat the local complaints with leeches where they can be easily obtained. If they cannot, he recommends the finger to be placed upon the orifice for a short time, when the breathing is relieved; and another and a smaller quantity of blood to be taken from the same orifice, until faintness deter us from proceeding further. In whatever way, however, blood be taken, faintness must be induced, and *kept up for some time*.

If the gums show heat or thickness in any part, they ought to be freely lanced. The bowels must be kept open by calomel and jalap, castor oil, &c. Mr. G. recommends the frequent exhibition of large doses of calomel and opium—not before blood-letting, but after; by this operation the head has been cleared, and the breathing has been quieted. By this combination sleep is induced; cough is appeased; perspiration is obtained and reaction prevented. It is also thought that the calomel acts here, as it does in some other diseases, by preventing effusion and producing absorption.

"Another advantage arising from the combination of opium is, that it enables us to give a larger quantity of calomel than would be otherwise practicable, without its passing off by the bowels; and as the glandular system in children is seldom affected by it, and ptyalism, therefore, rarely induced, we need not be deterred from giving it largely, and have occasion only to watch its operation on the bowels."

21. *Iodine in Cutaneous Diseases.*—Dr Jeffray, of Liverpool, has stated in the Lancet, that he has administered the tincture of iodine in various cases of psoriasis, and the different varieties of herpes, "with almost never failing success," as well as in lepra vulgaris. In the latter case the diluted unguent. hydrarg. nitrat. was also employed. We observe that Mr Jeffray begins with ten drops twice a day, increasing the dose to thirty drops night and morning.—*Medico-Chirurg. Review.*

22. *Colchicum in cholera.*—By Mr Taitt, Caen, Normandy. The subject of cholera, from a dread of its appearance in this part of Europe, seems to occupy much public attention; it therefore becomes the duty of every professional man to give his experience in the disease, so formidable in its nature, and so intractable in its management. With this view a communication was made to the edi-

tors of the *Edinburgh Medical Journal*, in December last, by a young friend of mine, stating the successful use I have made of the saturated tincture of colchicum in many cases of the milder form of the cholera, as it appears in this part of Europe; but as the paper has not been acknowledged, I beg, if you think it of sufficient importance, that you will, through the medium of your journal, suggest it as a remedy worthy of trial in the more aggravated forms of the disease, as it appears in Asia, and lately in Eastern Europe. It was administered in doses of from sixty to eighty drops; and in no one case did it fail to produce immediate, decided, and lasting benefit; except in that of an infant, which was dying when I visited it first. I think it a valuable remedy in cases of indigestion, with vomiting and purging, as well as in diarrhœa proceeding from a deficiency or total want of bile; all which appear to be modifications of the same disease. There is at present residing in your neighbourhood a most respectable family who can vouch for its efficacy—six members of which, in common with many other inhabitants, both English and French, residing on the same side of a street in this city, were seized on the same night, some time in September 1829, five of whom were relieved by this remedy, and up and well in a few hours, after a dose of castor oil—while two others, mother and daughter, who would not consent to take it, were confined several days. I will not enter into any theoretical speculations on the subject, but simply state, that it was in fine taken by myself, as a probable remedy, and powerful stimulus in exciting the liver, when in a state of great torpor, and aggravated by exposure to a cold evening air, in the vale of Taunton, after a fatiguing hot ride through part of Devonshire, during a sultry day in the month of September 1825. My attack was ushered in by cold chills and sensations similar to those of a slight paroxysm of intermittent, followed, on awaking four or five hours afterwards, by frequent eructation of offensive gas, vomiting and purging. Being in the habit of taking this tincture to regulate the biliary secretion, which was deranged by a long residence in the West Indies, I happened to have a vial in my chaise-box, and took about sixty drops, by the light of the street lamp. This dose arrested the symptoms in less than fifteen minutes, and enabled me, after a dose of seidlitz in the morning, to proceed on my journey. A similar effect followed an attack the next autumn at Liverpool, when much of the disease at that time prevailed. I communicated these circumstances to a friend of mine, at present on the civil establishment at Madras, who not being a professional man, will no doubt have allowed them to escape him. He was, however, the father of the family above alluded to.

"Your experience in both climates will enable you to judge of the probable success of this medicine in the diseases of India, if it be identified with that of Europe, or only differing in degree from accidental or particular causes; and your zeal I am sure will insure it a trial, if you think so."—*Med. Chir. Rev.*

23. *On the treatment of gout.*—At a meeting of the London College of Physicians, held May 30, 1831, Sir H. Halford read a short paper containing some observations on this subject. A report of this paper is contained in the *London Medical Gazette*, from which we extract the following article.

"Sir Henry remarked, that he felt as if some apology were necessary for directing the attention of those present to a complaint on which so much had been written as gout; but, said he, 'I rest assured that you will receive in good part the result of my long experience in the treatment of that disease, and that if I state to you that there is no malady to which I am called upon to administer, that I prescribe for with so much confidence in the resources of our art as for gout—formerly that opprobrium medicorum, you will give me willingly a few moments of your attention.' On the various seats of gout he would not dwell: in fact, it was to be met with in almost every part of the human frame. Some believed they had seen it in the eye, and he had himself witnessed it in the kidney, in the urethra, in the prostate gland, and in the tonsils. One of his colleagues had suffered from it in these, and he mentioned an eminent physician in the country so harassed by it, and so disappointed by finding no relief from the usual remedies of quinsy, that at length he plunged a lancet into it, in case any deep rooted collection of matter had taken place. None followed, but the gout was dislodged, and in a few minutes made an attack upon the great toe. The angina disappeared, but the disease ran its usual course in its new situation.

"Among the various remedies for gout, Sir Henry's dependence rests on colchicum. Under ordinary circumstances of gout in the extremities, he does not commence its use immediately, but postpones the antidote till the disease shall have become fixed: he then directs the wine of the root, prepared according to the formula of the pharmacopœia; and from this he expressly declared that he had not known 'a single instance of any untoward effect.' Frequently it removes the complaint without the manifest increase of any secretion: sometimes it causes perspiration, and sometimes acts as a diuretic; but so far is it from being apt to purge violently, as the eau medicinale was wont to do, that it is necessary in most cases to add a little sulphate of magnesia. The following is Sir Henry's prescription:—A saline draught, with camphor mixture; a drachm of syrup of poppies; and not exceeding from thirty-five to forty-five minims of the vinum colchici at bed time. In the morning the draught to be repeated, but with a little modification, viz. only twenty-five minims of the colchicum wine and half a drachm of the syrup of poppies, while to this is added a drachm of Epsom salts. This method is to be pursued for several successive days, and then followed up by a pill, composed of three grains of an acetic extract of colchicum,* and one or two grains of Dover's powder, with a like quantity of compound extract of colocynth, the whole being terminated by a mild purgative. 'It had been argued,' said Sir Henry, 'that it had been laid to the charge of colchicum that its good effects were but temporary: now, even if it were so,' he asked, 'whether three or four attacks, of as many days each, were to be compared in the extent of suffering they produced, with the weight of a six weeks confinement, spring and autumn, which used to be the case before the virtues of colchicum were known?' In addition to which, the evils resulting from the formation of chalk stones in the joints are now almost entirely done away—by the control exercised by this medicine over the inflammatory stage of the disease. But, besides, Sir H. Halford's experience is against the correctness of the opinion that gout returns more frequently under the use of the colchicum: on the contrary, when the vinous infusion has been followed up by the acetous extract, he holds himself justified in asserting that the attacks are removed to as long intervals as they used to be when left entirely 'to patience and flannel.' The learned author of the paper did not, however, recommend the above as a specific treatment to be adopted in all forms and varieties of gout, but as one of general application, requiring to be modified with varying circumstances. Occasionally some light preparation of bark is required in worn-out frames, to reinvigorate them after the colchicum: occasionally a blue pill is of service in restoring the flow of bile when it has become deficient. Of the different preparations of colchicum an infusion of the root in sherry, has appeared to Sir Henry to be decidedly the best: that made from the seeds is apt to excite insupportable nausea, and when this has once happened, it is in vain that you urge a patient to try it again: he prefers the acute agony of the disease to the distressing misery of the remedy.

"The learned president proceeded to state that colchicum was not a new medicine, having been used in the sixth century, under the name of hermodactyle. Being desirous to ascertain whether this was identical with our colchicum, he had procured some from the market at Constantinople, specimens of which were laid on the table: they appeared to be the same as the common meadow saffron, and Sir Henry is about to make trial of them in gout, in the same manner as colchicum.

"In preventing the recurrence of the gouty attack, by far the best remedy has appeared to be a few grains of rhubarb, with double its quantity of magnesia, every day; or some light bitter infusion, with a little tincture of rhubarb, and fifteen grains of the carbonate of potash, if the digestive powers were considerably impaired. Depletion, either by bleeding or strong purging, is to be avoided.

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* Made by evaporating an infusion of the root in vinegar.

But far more depends on the patient's management of himself than on any medicines, in keeping the malady at bay. He must live moderately, and dine earlier than the present fashion enjoins. Gentle, but regular exercise, and a mind free from anxiety, and not exhausted by deep study, are also among the precautionary measures; and in addition to these, the patient must be chaste. Pliny alludes to this, and uses a remarkable word in expressing it—*sanctitas*.

"In concluding his valuable and interesting remarks, the learned president stated that he had repeatedly seen the waters of Aix-la-Chapelle of much use in restoring the weakness of the knees and ankles, brought on by repeated attacks of other disease."

24. *A case of Tetanus successfully treated by the application of the Caustic Vegetable Alkali to the spine. Also, three cases of Cholera in which applications to the spine were successful; and a fourth case of abdominal irritation relieved by similar means. By L. P. Gebhard, M.D. of Philadelphia.*—We take great pleasure in laying the following histories before our readers. *Case* 1. On the 11th of June 1827, a fine, healthy looking girl, aged 14, daughter of J. J. White, on a visit to one of her friends, a short distance in the country, jumped inadvertently on the teeth of an iron rake, which lay on one of the garden walks. She was barefooted at the time; the teeth penetrated some distance in the bottom of one foot. After having crept to the house, a short distance off, she fell into convulsions, which continued, with little abatement, for several hours, after which she became relieved and was taken to her father's house in the suburbs of the city. A physician was called to see her soon after the accident, who either did not prescribe for her, or his prescriptions were not attended to; as I found when I visited her on the following day that nothing had been done in her case, although 24 hours had elapsed since the accident occurred. She complained of a stiffness of the muscles, extending from the affected foot up to the neck of the same side, without any spasm of consequence being apparent; her pulse deviated but very little, if any, from the healthy state. Upon examination I found the wounds in the foot closed up; I immediately enlarged them with a scalpel and applied the spirits of turpentine and caustic freely to them. She soon after became affected with spasms, for the relief of which I administered opium largely; the spasms nevertheless increased in frequency and violence, until they occurred at very short intervals, not only producing a rigidity and contraction of the dorsal muscles, as in opisthotonos, but also a constriction of the muscles of the precordia and the epigastric region, and an oppression and difficulty of breathing, which threatened the almost immediate extinction of life. In one of my visits to her on the 13th, a violent spasm came on, in which she exclaimed, that she could no longer breathe, and must certainly die. The case was truly distressing for the physician as well as the parents to witness; the extreme anxiety and oppression under which she laboured, during the paroxysm, and the prostration of the system after it, induced me to believe, that the next would, in all probability, close the scene in death, and whatever I intended further to do in her case, must be done without delay. Her parents were willing that I should make use of any means to save her life. I immediately sent for the caustic vegetable alkali, which I dissolved in water and applied to the whole surface of the spine, from the upper cervical vertebræ to the os sacrum. Before any impression was made on the back, by this process, another spasm came on, which continued until the whole surface of the spine became inflamed, when she exclaimed (to my delight), you are burning my back, and in a few moments the muscles became relaxed, the spasms disappeared, the patient was relieved, and the cure was effected: and she now lives in the enjoyment of perfect health, as a monument of the happy effects of a powerful impression made on the medulla spinalis.

Case 2. I will now relate a case of cholera cured solely by an application to the spine. On the 4th of March 1831, I was called to visit R., son of M. R., a sprightly and intelligent lad in the 10th year of his age, the only son and child of respectable parents; he was pale, rather emaciated, and feeble, though not confined to his bed. In the summer of 1830 he had an attack of bilious remittent fever, which continued for some time, since which his health had been very delicate; but within the last few months, he had several attacks of cholera, attended with pain in the bowels, but no fever. These attacks were gradually wearing out his strength, and were calculated, if not very soon arrested, to consign this interesting little fellow to an untimely grave. He, in this instance, had an attack of cholera, such as I have just mentioned, for which I ordered some mild remedies, such as opium, creta ppt., &c. which soon relieved him; after which I directed mild tonics and exercise in the open air. On the morning of the 28th of March I was again called to visit him in an attack of the cholera; the vomiting had, in a great measure, ceased when I saw him, but the diarrhœa still continued, with a slight pain in his bowels; his pulse was quite feeble and his tongue slightly furred; he had never complained of pain in his back, and nothing more than a trifling tenderness was felt, [illegible] pressure about the lower dorsal and upper lumbar vertebræ. Upon reflection, I came to the determination that I would direct no internal remedies, but trust entirely to an application to the back for relief. I ordered leeches to be applied to the part that was slightly tender, to be succeeded immediately after by a blister to the same part. No sooner was the blister felt, than the diarrhœa was checked; and the next morning, only 24 hours after the first visit, the patient was entirely relieved. He has had no cholera since, his strength and appearance have surprisingly improved, and his health is perfectly re-established.

Case 3. May 17, 1831, I visited W. S., son of R. S., aged 10 years, the irritation was in this case confined to the bowels, attended with pain preceded by looseness; there was considerable tumefaction of his abdomen, which was so sore and tender upon the least pressure, that he could not bear to have it touched, his skin was hot and dry, and his pulse rather feeble and frequent; this soreness also extended in a slight degree to the lumbar region. I did not think proper to order any medicine internally, but depend entirely upon an application to the spine. I directed him to be leeched over the lower dorsal vertebræ, to be succeeded immediately after by a blister over the same part. The next morning I found the tumefaction had subsided, and the tenderness of his abdomen entirely relieved, and he was able to be about the house: the next day he was quite convalescent, and in a few days as well as usual. This case shows decidedly the powerful influence which an application to the spine exerts on abdominal irritation.

Case 4. I will give a very short extract from another case of cholera in a child of 2 years of age, which occurred within the last month, in consultation with Dr J. Wilson Moore: 24 hours had elapsed after the attack before medical aid was obtained; the symptoms were very violent and obstinate, not yielding to the remedies usually employed in that disease. On the 3d day, the prostration of the system being very great, the extremities cold and clammy, the stomach very readily nauseated, by which internal remedies could not be regularly persevered in, and consequently not altogether to be depended on, led us to rely chiefly upon external means for relief. The principal external application was the decoct. of cantharides one ounce, spt. terebinth. two ounces, and a small quantity of essential oil combined; this we directed to be rubbed on the cold extremities, and also down the whole extent of the spine, which was persevered in with the most happy effect, by relieving the vomiting and looseness in the bowels. On the 4th day after the irritability of the alimentary canal had in a great measure subsided, a stupor and insensibility came on, which indicated the commencement of a cephalic affection, such as frequently occurs in the last stage of this disease, and is too often the precursor of death. The stomach being now settled, and the system still very feeble, we ordered wine whey and gum arabic water as nourishment, and the continuance of the frictions. After duly considering the extreme debility produced upon the violent and protracted irritability of the whole alimentary canal, and the inability of administering the medicines regularly, by reason of the unsettled state of the stomach, we have been led to the conclusion, that the most efficient remedy in this case was the external irritation to the extremities, and especially to the spine, which was kept irritated during the whole progress of the disease. In the 7th day of the disease, the child was convalescent, and is now doing very well.

It has, I think, been clearly shown by the cases just related, that the most prominent and deadly symptoms of the Indian cholera have been promptly and decidedly relieved by application of powerful remedies to the spine. Relieve these symptoms, and you relieve all that is absolutely destructive in that disease. It is not necessary here to enter into learned disquisitions concerning the rise and the progress, the symptoms, the remedies, the post mortem examinations, or the contagious or non-contagious character of this formidable disease. I have not the time nor the ability to shine conspicuously in such an Herculean task; and if I had, I should only reiterate that which has been given us from the experience of those who have witnessed the scenes of desolation and death produced by that direful disease. My only wish is, to add another remedy, which I trust may be efficient, to the catalogue of those which have already been used, so that if this scourge which commenced at Jessore in India in 1817, and extended its ravages to China and Persia, and the north of Europe, destroying in its route more than than 2,000,000 of souls, should ever visit this country, we shall be the better prepared to meet it. It may be conceded by many that though these remedial agents applied to the spine, may be serviceable in our cholera and our spasmodic diseases, it is no evidence that they will be in Indian cholera. For what resemblance has our cholera to the Indian cholera, that we should look for favourable results from those remedies which might be successful in any of our diseases?

Case 5. On the 27th of September 1831, I was called to visit an infant daughter of G. R. aged 7 months. She was taken with cholera on the 24th, and was without medical aid until the 27th. When I first saw her she was very feeble, her skin cool, and her pulse weak. The vomiting and diarrhœa still continued unabated; for which I ordered lime water and milk, or rice water in small quantities, a ginger plaster to the epigastrium, and a preparation of creta ppt. combined with an opiate, in order to allay irritation, and a very small quantity of calomel frequently repeated, for the purpose of acting on the biliary secretions, as the stools, by their light appearance, indicated an absence of bile. These remedies were rejected in different forms without benefiting the patient in the least degree. The debility (as a necessary consequence of the continuance of the cholera) increased rapidly. On the 28th the pulse was very feeble; the extremities cold and clammy; the countenance haggard and shrunk, and every symptom of excessive prostration apparent. I now concluded to depend no longer upon internal remedies, as they promised no benefit, but to rely solely upon external irritants for relief. I accordingly ordered decoct. cantharides half ounce, spt. terebinth. one ounce, ol. sassafras, one ounce, combined; to be rubbed frequently on the cold extremities, and particularly down the whole extent of the spine. The coldness and insensibility of the extremities were so great, that it took more than two days before a natural warmth could be produced in them, notwithstanding the frictions were applied every hour or two throughout the day; but my principal object being the irritation of the spine, I attended to the application myself until it became inflamed, and no sooner was this effected than the vomiting and diarrhœa began very perceptibly to decline. As soon as the stomach became composed, I ordered wine whey and gum arabic water, in very small quantities, frequently repeated, in order to assist in affording nourishment to the patient. On the 29th the stomach was settled, the bowels checked, the extremities warm, the countenance much improved, and she began to take her nourishment as usual. On the evening of the 30th, after having slept five hours without being disturbed, her system again became prostrated, her pulse was almost imperceptible, and a general coldness pervaded almost the whole surface of her body. I reproved the mother for this negligence, and ordered the frictions to be reapplied every half hour, both to the extremities and spine, until the former became warm, and the latter highly inflamed in all the parts where the cuticle had not previously been destroyed. I ordered at the same time the wine whey and gum arabic water to be frequently administered. On the morning of the 1st of October I found the patient quite relieved, since which she has been convalescent. Permit me here to add, that previous to the irritation being produced on the back, I think I can safely say, that I never saw the appearance of death more strongly depicted on the countenance of any child, in the last stage of a fatal case, than in the present instance; and if induced, as formerly, to depend chiefly upon internal remedies for a cure, I should have considered the case as hopeless and irretrievably lost. The more experience I have had in these cases, the more I am convinced, that the fatality attendant upon this disease is generally in consequence of the prostration induced by the continuance of violent symptoms, not controllable by any internal remedies. At that all trying period, when internal remedies can no longer be relied on, and the little sufferer is fast sinking into the arms of death, it is then the duty of the physician to contest every inch of ground with this grim tyrant, as in the instance above related, and, by the blessing of providence, he will be amply rewarded for his labours by the subjugation of this destroyer, and the restoration of the inoffensive little creature to the arms and the embraces of its tender and affectionate parents.

I think it may be fully shown, that our cholera is not so dissimilar to Indian cholera, as might at first appear; let us for a moment take into consideration the points of resemblance between the two diseases. In the first place, the Indian cholera is an epidemic disease: so is the cholera infantum. If any doubt exists on this point, look at the bills of mortality every summer. Do they not loudly proclaim, the havoc that this disease makes among children, in our large cities, every year? Ask any intelligent and feeling mother who resides in any of our cities and has an infant under two years of age, whether she does not dread the approach of another summer; she must either run the risk of losing her child, or flee for refuge to some country situation, or in other words, she must leave the infected district, during the summer months, if she consults the safety of her child. I know it is said, and very justly too, that unripe fruits are a frequent cause of the disease; but this is only one among several causes which contribute to render the affection so frequently fatal. My impression is, that the peculiar state of the atmosphere is, on all occasions, the remote cause of the disease, while dental irritation is the predisposing cause, and not unfrequently, the least quantity of unripe fruit or indigestible food of any kind, by disturbing the digestive process, becomes the exciting cause of the disease. I do not say that all these causes are necessary at all times to induce the disease; as for instance, a child may have cholera without eating any indigestible food whatever, but still I contend that though unripe fruit, or indigestible food, or dentition, may not be absolutely necessary, singly or combinedly, to produce the disease, yet this peculiar state of the atmosphere is really necessary to the production of the affection. Now, merely get rid of this remote or predisposing cause, or whatever you may please to call it, by sending the child into the country, and the other causes cease to exert the same deleterious influence upon the system. Hence physicians knowing the beneficial effects of the country air, have, I believe, uniformly advised such patients to be sent into the country when circumstances would permit. There can, therefore, be no doubt that our cholera infantum is an epidemic; there is, however, a difference in its character from Indian cholera. Our cholera is confined to cities, affecting principally children, and prevailing almost uniformly during the summer months; whereas the Indian cholera is of an itinerant character, confined principally to adults, and raging at all seasons of the year. Many of the symptoms of the cholera infantum are similar to the Indian cholera; the vomiting and diarrhœa are in both cases violent; the discharges of both thin and watery; the prostration of strength very sudden; the skin cold and clammy; the thirst insatiable; and the termination in many cases of both diseases has been fatal within the space of one, two, or three days, even under the most judicious treatment. Other symptoms might be enumerated in which both diseases are similar. The principal symptom in which they appear most to differ is that of spasm; although it not unfrequently happens that in those cases of cholera infantum which terminate fatally, the last scene is closed in spasms. Now, after taking this hasty and imperfect view of the subject, I would ask, why we may not from analogy expect similar results from similar remedies in both diseases. There is another reason why we may look for a favourable result from the application to the spine in Indian cholera: because it is simply a disease in which the alimentary canal is in a state of irritation; no deep seated inflammation, or organic affection or lesion whatever exists which is calculated to render the disease necessarily fatal, or which would prevent a strong impression, applied externally, from removing the impression which already exists. According to the report of the Medical Board of Bengal, as stated by Dr Hawkins, "in nearly all the post mortem examinations in which the patient died in the early stages of the disease, their bodies exhibited hardly any unhealthy appearance, and even after the disease had existed for some time, the internal coats of the stomach were perfectly healthy, and although the intestines varied from a deep rose to a dark hue," it, in all probability, was nothing more than might be seen after death from many other diseases, where, previous to death, those parts were scarcely suspected of being diseased. I regret that only one case is related by the Bengal Board, in which the state of the spinal marrow was examined; but even in that case, indications of great inflammation were detected in its sheath. If we were to judge of the seat of the disease from this case, the remedies which I have recommended to the spine, would be more appropriate than any others that could be recommended, inasmuch as they would be applied to the very part affected, and consequently better calculated to relieve.

According to the Bombay Report, and that of the Medical Board of Bengal, and Mr Annesly's in the general hospital at Madras, also the Report of Mr Corbin and other medical officers in India, the principal treatment, or that which was found to be most successful, in the Indian cholera, has been bleeding, calomel, opium and antispasmodics. The medical council of St Petersburgh also adopted the same practice as that pursued in India; in addition to which Sir William Crichton observes, that diaphoretics were found more serviceable at Moscow than the other remedies. A preparation of bismuth has also been highly spoken of in this disease, and is said to have been employed lately with much advantage.

According to my present view of this disease, if called upon to prescribe in a violent case, I would pursue the following course: if the system was high, skin hot and dry, pulse full and tense, I would bleed freely from the arm, and administer half a drachm of calomel; if attended with much pain, give an opiate and repeat the calomel until the stools assumed a bilious appearance; if the bowels were obstinately constipated, give aloes and rhubarb in combination with it; and without waiting one moment for the result of the remedies already employed, direct the application of cups to the whole surface of the spine, from the upper cervical vertebræ to the os sacrum; if the system would bear any further reduction, scarify the cups, if not, apply them dry; immediately after which, if the symptoms still continued, I would direct the whole spine to be inflamed and highly irritated by the caustic vegetable alkali; and if the symptoms did not still yield, repeat the application of the caustic to the spine, until the prominent and serious symptoms had entirely subsided—thus keeping up a continual counter-irritation, calculated eventually to subdue the irritation already existing.

If this irritation applied over the spine is calculated to be so beneficial in tetanus, why not in hydrophobia, inasmuch as both are spasmodic dieases, produced by irritants applied to some part of the body, in the one case by the bite of a rabid animal and in the other by instruments of various kinds. I allude here of course to traumatic tetanus. However different in some respects the cases may be, they nevertheless produce similar effects on the nervous system; namely, spasmodic action, which, if not arrested by some powerful agent, will sooner or later destroy life. In the case of tetanus which I have related, the application to the spine reduced the spasms immediately, and these spasms were more general and extensive than in hydrophobia, and equally violent and fatal in their consequences. In hydrophobia two prominent symptoms exist, which appear to be the principal cause of death, in that disease—the difficulty in deglutition and the difficulty of respiration, which sometimes threatens immediate suffocation: in the former the muscles of the throat and pharynx become spasmodically affected, by which volition ceases to have the control as formerly over those parts: the same is the case in the latter, where the muscles of the glottis, by their spasmodic action, contract the whole diameter of that cavity, which by acting upon the *rima glottidis*, naturally a very small aperture, must necessarily (if the spasms are not relieved) close it, thereby producing suffocation and death. When we reflect upon the contiguity existing between the parts so spasmodically affected and the spine, may we not rationally infer, that the spinal irritation would be even more efficient in hydrophobia than in tetanus. As internal remedies are inadmissible in a great measure in hydrophobia, after it is perfectly formed, we must necessarily rely upon external remedies, if any thing further is to be done; and what external remedies so applicable as those applied to the spine? If I was called to prescribe for a case of hydrophobia, my first business would be to make an impression on the spine. I would irritate, and persevere in irritating, until a concentration of action should be produced, particularly in the upper extremity of the spine, which could not fail in greatly lessening, if not entirely removing, all the inflammation or irritation existing in the larynx or pharynx, or any of the adjacent parts. It appears perfectly demonstrable, and capable of being readily comprehended by the meanest capacity. The principle of it can be as easily understood as that of cupping or blistering, in curing pleurisy or any other pain to which the human system is liable. It is this principle of counter-irritation which effects so much in the practice of medicine and is the sine qua non in many of our diseases; and why should it not be in this formidable disease, which has baffled the skill of all the sons of Æsculapius from the time of Hippocrates to the present day. But this irritation has advantages, even far greater than that of simple counter-irritation. It dissevers, as it were, the concatenation of morbid action, existing between the extreme parts of the nervous system and the brain: and the nervous influence thus modified or completely changed cease to exert an irritating effect on the muscular system. And if the spine is actually morbidly affected in this disease, which I have no doubt it frequently is, then the remedies which relieve such a diseased state of the spine must necessarily change that morbid nervous influence which passes from the brain through the medium of the spine to every part of the nervous and muscular systems, imparting vigour and energy to all the external muscular tissues, which are at all times, while in health, perfectly subservient to volition. I forbear making any further remarks upon this subject, as this paper already exceeds the limits which I intended to give to it.

Permit me here to remark, that I am inclined to believe that the same remedy, if applied over the cervical vertebræ and persevered in for several weeks or months, would be found efficacious even in epilepsy.

25. *Use of Gold in Cases of Syphilis.*—On the 16th of May, M. Magendie made a very favourable report to the Royal Academy of Sciences of Paris on a work by M. Legrand on this subject. The author establishes the fact that gold acts favourably on the digestive organs, without weakening the patient, and at the same time produces an exhilaration of spirits. There are four methods in which it may be advantageously administered; 1. Metallic gold reduced to a state of extreme division; 2. The oxide or chloride with potash; 3. The oxide of gold with tin; 4. The perchloride of gold and sodium. Of these the last is by far the most powerful. It is applied by mixing three parts of the perchloride of gold and sodium with nine parts of any inert powder, and administered by way of friction on the tongue, in doses, varying according to circumstances, from 1-30 to 1-3 of a grain per day. As much as a grain has been given with safety, but this requires care. This is the least expensive of all the preparations of gold. Next to this in strength is the oxide precipitated by tin, then the oxide precipitated by potash, and, lastly, the gold in a state of division, which is the mildest, and at the same time the surest form under which it is administered. It is obtained by dissolving one part of perchloride of gold in fifteen parts of distilled water, and then pouring into it little by little a solution of four parts of proto-sulphate of iron, in sixteen parts of distilled water, until there is no longer any precipitate produced. The precipitates are then collected and preserved for use. This is administered by

friction on the tongue, in doses from one quarter of a grain to four grains per day. It may also be administered internally in a spoonful of conserve of any kind. The oxides are employed in the same manner, but in doses of 1·10th of a grain to one and a half or two grains per day. They are more frequently given internally, either in pills of six grains of oxide, with sixty grains of extract of mezereon, or any other extract of a milder character, divided into sixty pills, of which from one to ten are taken fasting, in a gradually increasing ratio, or in lozenges made of six grains of the oxides, with one ounce of powdered white sugar, divided into sixty tablets, to be taken in the same manner. The work, which makes a tolerably thick octavo volume, contains very copious illustrations of the subject, and also of the danger of the use of mercury, of which the examples are striking and well reported. M. Magendie, in conclusion, bestowed high praise on the assiduity and research of M. Legrand, and considered that he had established the beneficial nature of his remedy, although in administering it great attention must be paid to regulate the doses according to the strength and constitution of the patient. The work has been published some years, but has only lately attracted the attention of the Academy.

V. MEDICAL JURISPRUDENCE.

26. *Medico-Legal Examination of two Cases of sudden Death from Wounds.*—We are indebted for the history of these two cases to the *Edinburgh Medical and Surgical Journal* for July, as given by Alexander Watson, Esq.

"The following cases are interesting in a medico-legal point of view. They illustrate what is necessary in the investigation of such cases; and they also show the importance of attention to the minutiæ of medical evidence.

"It is necessary to premise, that in Scotland, when any death happens under suspicious circumstances, upon information being given to the Sheriff of the county, the case is immediately investigated. And on medical gentlemen being appointed to inspect the body of the diseased, they are simply told, "there is the body of a person suspected of having died a violent death; report upon the cause of death; and if by violence, state in what manner, and by what means." The task, therefore, is often difficult, and requires the utmost attention even to very minute particulars; for circumstances apparently trifling in the medical evidence often turn out to be of great importance in elucidating and connecting the moral evidence either of the innocence or guilt of the accused.

"The first case is that of Ann Rennie or Pollock, who resided at Gifford Park, at the south side of Edinburgh, whose husband was tried in the High Court of Justiciary, 13th February 1826, and was convicted of having murdered her, but contrived to strangle himself in jail previous to the day of his execution.

"The body of this unfortunate woman was inspected by Mr Newbigging and myself on the 18th November 1825. We were informed of her having died suddenly. She seemed to be about fifty years of age, of stout form, of very low rank, having lived in a small, dirty, ill-furnished house, having only some shavings and straw upon the floor, covered with a rug, for a bed. The clothes in contact with the private parts were stained with blood. No appearance of injury could be perceived on any part of the body externally. But upon separating the *labia pudendi* a wound about an inch and a quarter in length was observed upon the inner side of the right nympha. This wound was evidently recent, its surface being covered with coagulated blood. Externally, it consisted of a remarkably clean, straight incision, parallel with the nympha. Internally, the finger could be introduced in four different directions, to the depth of about two and a quarter inches in each; upwards and backwards towards the division of the iliac artery; backwards towards the tuberosity of the ischium; laterally towards the hip joint, and upwards towards the *mons veneris*. In each direction the wound was nearly of the same diameter, which readily admitted the finger, and had distinctly an obtuse termination. By injecting warm water into the large vessels we found that none of them had been wounded, and the penetrating instrument seemed to have been forced only through the cellular tissue. The weapon had passed up to the peritoneum at the right side of the pelvis, under which there was a considerable effusion of blood, but had not penetrated it. Another very small, but also very clean, external incision was observed at the side of that above described.

"The cavities of the cranium, thorax, and abdomen were each examined, and their contents found to be quite healthy and natural. The hemorrhage, therefore, which had taken place from the wound was the only cause which we could assign for her death; and this, we knew from the nature and structure (erectile spongy tissue) of the parts cut, must have been profuse.

"Respecting the probable instrument with which this wound had been inflicted, it was obvious from the cleanness of the cut that the external part of the incision had been made with a remarkably sharp-edged instrument; and from the very obtuse termination of each of the internal wounds, their small depth, and the absence of any injury of the important neighbouring parts, it was highly probable that, though the instrument that inflicted the wound must have had a very sharp edge, it had a round or blunt point. Now, the only very sharp-edged instrument which I conceived such persons were likely to have possessed was a *razor*. This instrument has also a blunt point, and could not be inserted to a greater depth than two or three inches, on account of the fingers holding its blade in so using it. I also conceived that, after the external part was cut, any sort of knife could have been thrust into the parts, so as to have formed the wound above described. This I verified by experiment with a razor upon the dead body.

"It was proved by evidence, at the trial of the husband for this horrid crime, that two old rusty table-knives had been found in the house, as also two *razors*. One of these razors had its blade and handle covered with blood, and was found concealed in a piece of green cloth. These particulars rendered it almost certain that this had been the weapon used; so that the nature of the wound previously pointed out the probable instrument with much accuracy; though the circumstance of such having been found in the house was then quite unknown to the medical witnesses.

"In this case two other points occurred for the consideration of the medical jurist. Could she have inflicted this wound herself? Several circumstances which appeared in evidence rendered this impossible; 1st, She was in a state of intoxication at the time; 2d, Her husband was in the house along with her,—saw her state,—went for a surgeon, (Mr George White) and never alleged this at the time; 3d, No lethal weapon was found near her; 4th, The *pudendum* was a very extraordinary place for a suicide to inflict a wound.

"It was also alleged and pled for the prisoner, that she had fallen upon a piece of broken earthen-ware and cut herself. Could this wound, then, have been occasioned by such an accident? It was impossible to conceive that any broken piece of earthen-ware in common use could, by the woman accidentally sitting down upon it, have inflicted such a clean external incision, and produced the wound in the different directions above described. Such a portion of earthen ware, if sharp pointed and advantageously placed, might certainly have produced a pretty severe wound of the part; but it would have been a *lacerated* wound, not of any great depth, and not larger internally than externally, and in no part greater than the size of the wounding body; and it was very improbable that it would have had different directions internally.

"The second case, which is very similar to that just detailed, is that of Mrs Bridget Calderhead, who resided at Dunbar Street, near the Canal Basin, and whose sudden death was occasioned by a wound received on the morning of the 1st January 1831. Mr Mitchelhill, surgeon, had been called in to see this unfortunate woman soon after the accident, but found her dead when he arrived. At the request of the sheriff, I accompanied Mr Mitchelhill in the examination of her body, which we performed on the afternoon of the 1st January, in the Police Office, to which place her body had been carried.

"We found the body of this woman dressed in her ordinary day-clothes and covered with a blanket. We removed her clothes very carefully. They consisted chiefly of a printed cotton gown, two flannel petticoats, (one blue, the other white) and a shift. These seemed almost quite new, and had no wound or tear in any of them, with the exception of the blue petticoat, in which there were some small worn holes. The lower part of all these garments had been drenched with blood, with which they were still wet.

"We then discovered that the hemorrhage had proceeded from a wound upon the middle of the left *labium pudendi.* Externally, this wound consisted of a very clean incision about three quarters of an inch in length, having a straight direction parallel with the margin of the *labium.* When the finger was introduced into this wound, it entered into a bloody cavity sufficient to have contained a small hen's egg; and from this cavity the finger passed to a greater depth in three different directions,—viz. upwards towards the under part of the *symphysis pubis,*—downwards towards the *perineum,* and backwards by the side of the vagina and rectum. Its greatest depth at any of these parts was between two and three inches. When the internal part of the wound was laid open, the divided orifices of several pretty large arteries and veins were seen, and particularly the divided extremities of the large artery going to the clitoris. The orifices of these vessels, as well as the internal surface of the wound, had the appearance of having been very clean cut by a sharp instrument. I removed the wounded parts, and preserved them in spirits.

"On the back part of the head there was the mark of a contusion, which had occasioned the extravasation of a small quantity of blood upon the anterior surface of the brain. The cavities of the chest and abdomen were quite natural.

"There could be no difficulty in this case in ascribing death to the excessive hemorrhage occasioned by the wound at the *labium pudendi.* We therefore gave this as our opinion as to the cause of death. The other question then arose, What was the probable instrument and manner in which the wound had been inflicted? From the straight, very clean incision externally, in length corresponding exactly to the breadth of many of the knives in most common use, as well as from the extent, cleanness of the wound internally, and its different directions, it appeared pretty evident, and most probable, that it had been inflicted by some kind of knife; and, indeed, it obviously could only have been produced by several thrusts of a knife in different directions. Some pieces of a broken wine-glass, however, had been found adjoining to some of the blood the woman had lost at the foot of the stair where she had received the wound. It therefore became a question of importance, whether or not the wound could have been occasioned by her having fallen upon these broken pieces of glass?

"1. Let us consider, Is it *physically possible* that any of the portions of the broken wine-glass, or of any wine-glass in common use, could have made such a wound? A portion of glass capable of forming such a wound must have been between two and three inches long, about three fourths of an inch broad, having a sharp cutting edge, and some degree of point; and it must also have possessed sufficient strength to permit its having been moved about and thrust in different directions, without breaking. To form such a piece out of a common wine glass, is evidently beyond the utmost ingenuity of man; far less, then, could such a portion have been formed by accidental fracture.

"The broken portion of glass found, consisted of the stalk of a common wine-glass without the foot, having at its upper part the bottom of the cup of the glass, of about an inch in diameter, attached to it transversely. Nearly the whole of the cup of the glass was broken off, leaving only a few fragments of the sides projecting upwards from the bottom which remained. The part of the stalk of the glass which remained was about an inch or an inch and a half in length, and its lower part had been clean broken across, leaving no sharp point. It was, therefore, quite obvious that this fragment of glass was completely incapable of forming the wound in question; for, the length, form, and sharpness which were requisite, were completely wanting; and any wound which could have been occasioned by it, must have been quite different in its character. A wound from such a piece of broken glass would have been a *lacerated wound,* not a *clean* *incision*, not larger internally than externally, and could not have had several different directions internally. The upper end of the glass would have made several small lacerated wounds, while the lower end could not have made any wound at all. I therefore came to the conclusion, that it was physically impossible for the wound in question to have been produced by any portion of a broken wine-glass such as that found.

"2. But supposing that it had been physically possible for such a wound to have been occasioned by a fragment of broken glass, was it in any degree *probable* for it so to have happened in this particular case? In order to have accomplished this, the requisite portion of glass must have been standing ready to receive the fall of the wounded part upon it; the person must have either sat down, or fallen forward upon it, and her clothes, at the time, must have been completely out of the way, as there were none of them wounded; and moreover, the penetrating piece of glass must have thrust itself in different directions, making clean incisions internally, as well as externally. So that a concurrence of circumstances highly improbable, nay, almost miraculous, would have been required, in order that the wound in question could have been occasioned accidentally.

"From a careful consideration of the foregoing circumstances, I came to the conclusion, that it was neither physically nor morally possible that the wound received by this unfortunate woman, could have been caused accidentally by her having fallen on the portion of wine glass alluded to; and such, I believe, were also the opinions of Mr Mitchelhill, and of Dr Christison, who gave his opinion on the case at the trial. But it could not be denied *to be within the verge of possibility*, that the wound might have been occasioned by her having fallen upon some other piece of glass or sharp body, and therefore we each, individually, thought proper in giving our evidence at the trial to qualify our *opinion* upon this point, by saying that we considered it to be *scarcely possible and very improbable*.

"I was also asked at the trial whether or not this wound could have been produced by her having fallen accidentally on a pair of scissors; to which I stated, that I did not think it could by any of the scissors in common use. For, it is obvious that, to have produced such a wound, the blade or blades of the scissors when together, must have had the sharpness of a knife, as also the requisite length and breadth; besides being in an erect position when fallen upon, and afterwards moved in different directions to form the internal wounds,—a combination of circumstances which, as already mentioned respecting the glass, I conceived to be nearly impossible. I may add, that neither scissors nor pockets were found about the person or clothes of the woman.

"By the evidence adduced at the trial of two young men, brothers, of the name of Duncan, for the murder of this woman, it was obvious she had received a wound at the first floor of a common stair, almost immediately after which, she was precipitated headlong to the bottom of the stair. When she was there found, upon being set up, blood was observed trickling down her legs. Much stress was laid by the counsel for the pannels, upon there having been no blood seen upon the stair. But when it is recollected that she had on her two thick flannel petticoats, a gown and shift, which were each drenched with blood, it is obvious that the clothes, absorbing the blood when it first flowed, and her rapid progress head forward down the stair, easily explain this circumstance.

"The above are two cases very similar in their principal features, and appear to me to be highly interesting in a medico-legal point of view. From the details here given it is obviously necessary, in such cases, for the medical jurist, to form an accurate opinion whether the death had been occasioned by violence or by natural causes; and, if by violence, to say whether most probably by accident, suicide, or murder. These form considerations of the highest importance to medical men, as upon their evidence the lives of others frequently depend.

"In the above cases, it is also obvious, how very accurately the nature of the wound may point out the probable weapon of its infliction; and how very important this circumstance is, in establishing the criminal design with which such wounds may have been inflicted.

"In both of the above cases, I removed and preserved the wounded parts, by cutting out along with them a considerable portion of the soft parts; at the same time, carefully preserving entire the external wounds. This I consider to be a matter of considerable importance in all such cases; 1st, That the wounded parts may afterwards be examined more minutely; 2dly, That any lethal weapon or other sharp body afterwards found and supposed to have occasioned the wound may be compared with it; and, 3dly, That the nature of the wound may be seen by any other medical jurist who may afterwards be consulted in the case, either by the crown or in behalf of the accused.

"Before concluding, I shall make a few remarks on wounds inflicted in the situation of the cases just detailed. In both the above cases this part of the body seems to have been selected by the murderers to effect their design secretly. For in both, but particularly in the first, the wound was concealed to a superficial observer. And they may have had an idea, from the frequency of 'flooding' in females, that their deaths might have been supposed to have happened either from this cause, or by accidentally injuring themselves by sitting down upon some sharp body. For, it is a curious fact, that in both cases the probable murderers* were the first to go for medical aid to the deceased.

"Both cases also show, that wounds of the external parts of generation in the female may prove fatal by excessive hemorrhage; the peculiar structure of the parts, consisting of erectile spongy tissue, which is very vascular, giving rise to a continued, steady, though not very rapid, flow of blood.

"In both cases the defence set up by the pannel's counsel of the deceased having cut themselves by having accidentally sat down upon broken sharp bodies, was certainly plausible, and could only be controverted by the careful examination of the nature and form of the wounds, and a comparison of them with the alleged inflicting bodies. In both cases this was of great importance, as the deceased did not live to narrate the causes of their wounds; and in both, it appears to me, that the inferences deduced were beyond the possibility of doubt."

27. *Monomania—Phrenology.*—We give an account of a case thus headed as we find it in the Medico-Chirurgical for July 1831.

"In a late clinical lecture at St Thomas's Hospital, Dr Elliotson alluded to a curious case of monomania, which we shall here notice.

"The patient was a female, thirty-one years of age, who had been admitted for a nervous affection, but who was soon found to be monomaniacal. The propensity was to injure some part or other of her body, by internal muscular efforts, and not by attempts at cutting or maiming. The part of the body that fell under the monomaniacal displeasure was never long the same, but varied from hour to hour—commencing in one part whenever it had ceased in another, so that she had no respite from this harassing propensity. Her judgment on all points was good—she had no hallucination—and was conscious of the unnatural impulse which perpetually led to injure her own body. There was no reason to suspect a feigned disease. She had headach, drowsiness, sense of pressure on the head, as well as that of 'opening and shutting,' to use her own expression, behind the ears and round the back part of the head. Her breath was so offensive that it was impossible to inhale it without sickness. Her tongue was very much furred. She was sleepless. Her occupation had been that of teaching children, and working at her needle. Dr Elliotson considered this case as one illustrating the doctrines of phrenology—namely, that it was a case where the organ of destructiveness was in an excited state, and consequently where the 'instinct carnassier,' as Spurzheim [Gall?] would term it, was strongly called forth. Here, indeed, it was not a homicidal but a suicidal propensity that existed; yet the nature of both is the same. The peculiarity in the present case, which attracted attention, was the pain and throbbing just over each ear, and extending posteriorly round the head. Every gentleman who attended to the case, was witness of this phenomenon. 'This (says Dr E.) was a very striking phrenological fact,' and he goes on to state his belief in the truth of the general doctrines of phrenology. 'I have examined (says he) the subject of phrenology most carefully and unremittingly, and have seldom allowed a day to pass without making some observations upon it; and, after thus examining it for ten or twelve years, I am more and more satisfied of the general truth of what Dr Gall has announced.'

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* "Though the Duncans got off by a verdict, by a plurality of the jury, of 'not proven,' yet there could be very little doubt of the guilt of one of them. It was impossible, however, to ascertain which, so that both were transported for *assault.*"

" 'With respect, however, to the *treatment* of this woman, our patient, I considered that an inflammatory affection of that part of the head, was the cause of the pain and morbid desire which she experienced. I cupped her behind the ears to twelve ounces, and gave her calomel five grains, twice a day, and put her on low diet. Leeches were again and again applied to that part. She was admitted on the 18th of January, and twenty leeches were applied to the seat of the pain every day until the 8th of February. From that time they were applied every other day for a fortnight. Her mouth soon became tender, and as that took place, her tongue became clean, and her breath ceased to stink. At last it began to smell of mercury, but the odour was quite changed in its character, and was supportable. She twisted her head less and less, and she slept more. She was observed to sleep several hours in the night. The pain in the head left her, and she now felt relieved from the disposition to strain and injure herself. She was a deformed woman, and the lungs and heart had hardly any room to play. She was subject to more or less bronchitis, and was seized with an acute attack from being placed near a window, and it was necessary, on account of this affection of the chest, to bleed her. She was bled to six ounces, recovered from the bronchitis, was now really well, and was to be presented on the following Thursday. On the Saturday, however, being in the ward, just as usual, she was seized, I understand (for I had left the hospital), with pain in the abdomen, and in a few minutes died. The friends came for the body before the inspection could be completed. The head was examined, and also the chest, but nothing morbid was found in either, except the adhesion of the dura mater to the brain above the meatus auditorius externus. On account of the friends waiting for the body, the examination of the abdomen was not proceeded with, and therefore the cause of death is shut up in mystery. Whether she died from a rupture of any thing in the abdomen, I do not know, but she was seized with pain there, and in two minutes was dead. I have no idea at all of the nature of the cause of her death, although I am quite satisfied that it was in the abdomen.'

"Dr Elliotson mentions some curious cases of monomania, and among others that of a lady who was constantly harassed with the dread of pollution from filth in the streets or houses. In another individual, the dread of typhous contagion was predominant, so that she would not allow her medical attendant to come in contact with her. We could add half a hundred instances of similar kinds from our own experience; but the narrative would be tiresome and useless. One of these is a lady who dreads the contagion of hydrophobia, and dare not walk the streets lest she should encounter a mad animal, or the saliva of one, which to her is as dreadful as the bite."

VI. MATERIA MEDICA AND PHARMACY.

28. *Iodide of Lead in Scrofulous Swellings.*—The attention of the medical profession has been recently called in the French journals to the *iodide of lead* as more efficacious than any other preparation of iodine in resolving scrofulous and scirrhous tumours. It is stated that patients who had previously been unsuccessfully treated with iodine and hydriodate of potassa administered both internally and externally, were rapidly improving under the use of the iodide of lead. The subject needs further investigation, and is well worth the attention of American physicians.

29. *Nux Vomica.*—It has been made a question in Italy whether nux vomica is stimulant or sedative. With a view to decide the disputed point, Professor Louis Beraudi made numerous experiments upon himself, from which he derived the following conclusion. We report the words of the author as given in the *Archives Generales* for April last. "As to the action of nux vomica in the healthy state, the flushed face, the redness of the tongue, the increased frequency and force of the pulse, &c. allow us to assert that the effects of this medicine, under the circumstances in which we have experimented with it, are those of an excitant, and that it exercises a stimulant influence over the vital powers."

30. *Effects of various Medicines upon the System in Health.*—In Vol. VII. of this Journal, pp. 192, 193, we noticed the experiments on himself of Dr Waltl, and in Vol. XI. p. 235, those of Professor Jœrg of Leipsic in relation to Water, of Chevy Lamel, to Valerian and Digitalis. We are enabled to present to our readers the results which Professor J. has obtained with other medicines. It is worthy of notice that he is assisted by a society consisting of twenty-seven individuals of different ages and sexes, upon whom the experiments are performed. We derive the following facts from the *Revue Medicale* and *Archives Generales.*

Nitrate of potassa. This was administered to eight persons, at first in small doses, which were gradually increased till the quantity taken amounted to one drachm or more during the day. In one instance the experimenter began with a drachm, and went so far as two drachms at a time. The conclusions of M. Jœrg were that nitre exerts an excitant action upon the kidneys, the alimentary canal and the skin. The diuretic effect is the most evident. The stimulant operation upon the digestive tube is manifested by an increased secretion of saliva followed by dryness of the mouth and œsophagus, and consequent thirst; by a keen sensation of hunger, and pains in the stomach similar to those which attend inflammation of this viscus; by eructations, and in large doses, by vomiting, colic of the small intestines, and liquid stools, and sometimes by constipation, when the medicine acts more especially upon the kidneys or skin. Its influence often extends to the large intestines, when it produces tenesmus without evacuation. Its action on the skin is much less certain, though evident in many cases. In moderate doses it operates on no other organs, never producing vertigo nor headach unless very largely administered. Nitre moreover produces a sensation of coolness in the mouth, œsophagus, and sometimes even in the stomach, at the instant when it is swallowed in the state of recent solution. This sensation continues for some minutes, and is then followed by a reaction proportionate in degree to the primitive effect. The more the pulse is diminished under the refrigerant influence of nitre, the more frequent it becomes when the reaction takes place. This secondary effect proves that nitre is not antiphlogistic. Such, at least, is the opinion of M. Jœrg; and he supports it by the further evidence, that the medicine undoubtedly stimulates, and may even inflame the stomach and bowels, and the urinary organs. But a direct restraining power over the general circulation is by no means incompatible with the property of local stimulation; and the general conviction that nitre directly diminishes the action of the heart and arteries, and is therefore useful in excited states of the circulation, is too strong to be overthrown by the authority of any single individual. That if largely given it may inflame the stomach, and thus produce secondary excitement of the heart, after its own direct action has ceased, there can be no doubt; and this fact should always be borne in mind when it is administered as an antiphlogistic remedy.

Hydrocyanic acid (prepared by the process of Vauquelin—essentially the same with that of the Pharmacopœia of the United States). Given to four members of the society in the dose of from half a drop to three drops in an ounce of water, it uniformly produced heavy pains in the head, dryness of the fauces, and an unpleasant scratching in the throat similar to the sensation produced by eating too freely of dry nuts. By experiments on brute animals it was proved that a principal effect of the acid is to decompose the blood, which becomes dark, and accumulates in the veins and right cavities of the heart. As the result of his researches, M. Jœrg states that "hydrocyanic acid acts with extreme rapidity and violence upon the brain and nervous system, but its effects are more prompt and intense upon the encephalic nerves, than on those of the ganglionic system. The momentary excitement of the brain is followed, more or less rapidly, by a diminution of the nervous action, and even by death. When it does not speedily produce death, it determines inflammation of the trachea, and especially of the larynx. Under certain circumstances it appears also to act on the kidneys, and to increase the urinary secretion. Hydrocyanic acid occasions death in two ways; first, by a total and instantaneous extinction of sensibility; secondly, by a paralysis of the respiratory nerves, or, in other words, by asphyxia.

Serpentaria.—From the experiments of M. Jœrg it appears that this medicine excites the intestinal canal and its appendages, produces congestions in all the viscera of the abdomen, and determines the production of flatulence rather than the secretion of mucus. With the greater number of experimenters it produced eructations, nausea, vomiting, a sense of weight or pain in the stomach, rumbling and colicky pains in the small intestines, frequent expulsion of flatus from the bowels, tenesmus without fecal evacuation, some tenacious stools, loss or increase of appetite, swelling of the belly, especially about the epigastric region, and, finally, itching about the anus. Sometimes M. Jœrg observed marked increase of the natural heat, especially about the head, a sense of weight, and even pain in this part. In some cases it increased the activity of the circulation, and in others acted as a diuretic. The infusion he believes to act especially on the brain, the powder on the gastro-intestinal mucous membrane.

Camphor.—From numerous experiments M. Jœrg infers, that camphor in the first place excites the alimentary canal and the brain, and secondarily extends its action to the genito-urinary organs, to the skin, and the organs of the circulation, which it stimulates. He considers it in all cases an active stimulant, increasing the heat of the body; often producing sweat; accelerating the circulation and augmenting the force of the pulse; modifying in a marked manner the secretion of urine, both as regards its quantity, and even more frequently as it regards its composition; and actively stimulating the organs of generation. This last effect he observed in the most evident manner in several persons submitted to experiment. By consulting this Journal (Vol. IX. p. 442) it will be seen that Professor Jœrg was anticipated on this point by Dr Scuderi of Messina, who states expressly as the result of his experiments that camphor acts electively on the genito-urinary apparatus, producing erethism of the generative organs, &c. This effect is considered more important, as camphor is generally thought to calm irritation in these parts, and is often prescribed in strangury and similar complaints. The influence of small doses of camphor is not prolonged more than three or four hours. M. Jœrg thinks in relation to the dose that from half a grain to a grain administered at suitable intervals is sufficient in most cases. There is no doubt that in such doses it sometimes produces a calming effect in cases of moderate nervous irritation; but with a view to its full influence upon the system, the quantity is altogether insignificant.

Castor chosen with the greatest care and given in the dose of twenty grains was found to produce only some disagreeable eructations, without any appreciable effect upon the system. Hence it is inferred that the sentence of exclusion which has been generally pronounced on this drug is just.

Musk appeared to be much less diffusible and penetrating than is generally believed. It nevertheless extends a powerful action to the intestinal canal, and particularly to the brain. Its first effects on the healthy system are manifested by eructations, weight at the stomach, diminution or increase of appetite, dryness of the œsophagus, heaviness of the head, vertigo, or cephalalgia. Its secondary effects are much more observable on the encephalon than the alimentary canal. They are frequent gaping, somnolence, weakness and a sense of heaviness throughout the frame, and, finally, profound sleep, which continues for some time. In very large doses musk produces trembling of the limbs, and even convulsions. It moreover sensibly increases the activity of the circulation, rendering the pulse fuller and more rapid. Most writers state that the sweat, urine, and feces of persons who have taken musk have a strong odour of this substance.

M. Jœrg concludes from numerous and careful experiments that this effect does not take place; and that the smell is attributable solely to the frequent eructations, by which the clothes become impregnated.

The bean of St Ignatius.—This medicine first increases the secretion of the salivary glands, then produces nausea, weight and pain in the epigastrium, increase or diminution of appetite, frequent eructations, colic, rumbling in the bowels, constipation or looseness, and finally a sense of heat and itching at the margin of the anus. After these primitive effects, are observed heaviness of the head, vertigo, heavy pains in the occipital, frontal and temporal regions, and inflammation of the eyes, accompanied with a considerable increase of the secretion of the glands of Meibomius. Finally prostration supervenes, with great somnolence, and general apathy. These secondary effects are sometimes followed by an obvious acceleration of pulse, great oppression, and a tingling, smarting sensation in the urethra. A singular character of the medicine is that its effects disappear and are reproduced once or twice after a considerable period, which varies with the dose and the constitution of the individual. M. Jœrg thinks it applicable to cases of stomachic and intestinal debility, attended with chronic induration of the mesenteric glands. Great advantage may be expected from it in weakness of vision and atony of the nervous centre. In most cases half a grain given once in the twenty-four hours is sufficient: but as the medicine acts with greater difficulty on certain individuals, the quantity should be increased till it begins to operate. According to M. Jœrg, the tincture is less active than the powder.

VII. SURGERY.

31. *Arterial Varices.*—The following notice of a morbid dilatation of arteries, improperly termed *arterial varices*, is from the *Transactions Medicales* for October 1830, and was presented to the Academy of Medicine on the 24th September, by the celebrated Dupuytren. He considers it always a very serious, but happily a rare affection.

" Twenty years ago, Pelletier had charge of a young female, who had a remarkable dilatation of the temporal and occipital arteries, throughout their whole course. Recourse was had to ligatures upon the trunks, but unsuccessfully; successive hemorrhages supervened and fatally exhausted the patient. On opening the body, all the arteries of the head were in a state of dilatation, and also many of the arteries in the extremities. About twelve years since, a similar case occurred to M. Dupuytren: the dilatation involved equally the arteries of the head. The primitive carotid artery was tied, and the patient happily recovered.

" The individual, who has furnished the anatomical preparation at this time presented to the Academy by M. Dupuytren, came under his care two months ago. A man, sixty years of age, was received at the Hotel Dieu, with two aneurismal tumours in the ham, a cancer of the leg, and an erectile tumour on one of the toes. Amputation of the thigh was performed. On dissecting the limb, the existence of two aneurismal tumours in the ham were noticed, in a collapsed state, and completely empty of blood, not even containing coagula. The popliteal artery, which was the seat of these tumours, had the diameter of the abdominal aorta. The tumours were about an inch distant from each other; the superior one was of the size of a large almond, the inferior of that of a pigeon's egg. The dissection of the parietes of these tumours exhibited a manifest dilatation of the internal and external tunics of the artery. The fibres of the middle coat were frayed and separated; the internal coat was pushed into these intervals, so as to form part of the tumour; the middle coat was evidently in a diseased state throughout the whole of the tibial and peroneal arteries; it was thickened, yellowish, and its fibres were separated, and as if (éraillées) frayed. The internal and external coats had undergone no alteration. The anterior and posterior tibial and peroneal arteries equalled in dimension that of the femoral artery, so that M. Dupuytren could easily introduce his finger into their cavities. The plantar arteries, through all their course, were ten times at least their natural size; their parietes were double their normal thickness, depending principally on the enlargement of the middle coat, as nothing morbid was to be remarked in the other coats. All these arteries presented, besides their state of general dilatation, swellings here and there, which exactly resembled groups of varices. Hence M. Dupuytren has proposed for this disease, the denomination of arterial varices. M. Dupuytren recollects that he and M. Dubois met, some years since, with a case of a similar character. M. Breschet also possesses a similar fact, which he will no doubt present to the Academy. Scarpa absolutely denies the possibility of the existence of this sort of aneurism, or rather, of this general dilatation of a part of the arterial system, so as to resemble venous varices. The fact, which M. Dupuytren now exhibits, leaves no doubt of the existence of this malady. The arteries then are susceptible of the dilatation which is so frequently observed in veins."

32. *Laryngotomy successfully performed during the existence of Goitre.*—In the *Archives Generales* for November 1830, is recorded a case by M. Willaume, chief surgeon of the Military Hospital at Metz, of a female, aged twenty-eight years, at the fifth month of pregnancy, and having a goitre of considerable size, who had swallowed, while taking some soup, a fragment of bone, which passed into the trachea. Severe symptoms supervened, generally in paroxysms, by which her health was so much impaired, that an operation became necessary to preserve life. The enlarged thyroid was depressed as much as possible, and with some difficulty the operator succeeded in dividing the crico-thyroid membrane with a bistoury, and on withdrawing the instrument, he divided without difficulty the thyroid cartilage on its median line, and through its whole length(!!). The patient was not relieved; a violent, threatening attack of dyspnœa supervened, which after some time ceased. The ventricles of the larynx were examined by introducing the ring finger into the wound, but no foreign body was detected. A probe was then passed down the trachea, and it encountered some resistance from the foreign body, which after some movements was detached, and very soon after a violent paroxysm of coughing, it was expelled, with a large quantity of mucus. The wound readily healed, the voice was not impaired, and an accouchement occurred at the regular period.

33. *Cæsarean Operation.*—In the *London Medical and Surgical Journal* for January 1831, Mr John Stirling has given the details of a case of a deformed female on whom he performed the Cæsarean operation, after labour had existed for some hours. The child was saved; the mother died in sixty-six hours after the operation. This patient was bled from the arm, twelve hours after the operation, when there was no tenderness of the abdomen and her " pulse 130 and rather sharp"(?).

34. *Section of the Sciatic Nerve.*—Wounds of the nerves being still regarded by many surgeons as peculiarly dangerous, and the source of many accidents of the most serious importance, it is right to fix attention on injuries of nerves when occurring in individuals free from particular disease. In the *Revue Medicale* for March, we find an extract from the *Osservatore Medico di Napoli* for December 1830, exhibiting the result of divisions of the great ischiatic nerve by Dr Malagadi upon animals, and on the human subject. This surgeon was consulted by a man aged 31 years, who for eleven years had been afflicted with a violent pain in the foot and leg of the right side, which interested the different nervous branches on the superficial portions of the limb. Considering the little amelioration in the symptoms, and the absence of severe exacerbations, notwithstanding the number and variety of medicinal means adopted for eleven years, he concluded that this was a case not of simple exaltation or depression of nervous influence, but of structural alteration in the nerve. Hence he determined that excision of a portion of the nerve was the most desirable measure to be adopted. To deter-

mine, however, more particularly the effects of this operation, he had recourse to some experiments on dogs, in which the nerve was divided, and the animal examined ten months after the operation. He concludes,

1. That the section, practised at the inferior third of the sciatic nerve, causes a paralysis, and consequently atrophy, but not gangrene of the muscles of the leg.

2. This paralysis extends from half the leg to the extremities of the toes.

3. The leg retains the power of sustaining the body and of motion, because the articulation of the knee and its muscles are not injured.

4. The most certain method of preventing the reunion of the two extremities of the divided nerve, and consequently the return of the sensibility and motion in the foot, is the excision of a portion of the nerve, which insures the utility of the operation. Encouraged by these results, M. Malagadi determined to operate. On the evening previously, a bleeding and purgative were prescribed. On the 5th of March 1828, the patient being placed in a recumbent position on the abdomen, the requisite incisions were made over the sciatic nerve on the posterior part of the limb, at about four fingers' breadth above the popliteal region, and corresponding to the separation of the flexor muscles. The nerve being exposed and separated from the cellular tissue and the vessels which surround it, was divided at the superior angle of the wound by means of a curved, probe-pointed bistoury. The patient was immediately seized with a universal tremor, and a very violent lancinating pain, which extended rapidly from the injured portion to the brain, following the course of the vertebral column; almost immediately syncope ensued, but it was of very short duration. On his recovery, the nerve was again divided at the inferior angle of the wound without the least sensation being excited. The wound was dressed and the patient placed in bed with the limb extended, not to prevent a reunion of the nerve, for an inch and a half of it had been excised, but to prevent the approach of the extremities, so that adhesions to the neighbouring parts might not give rise to stretching of the nerves, and hence to a renewal of the pain. The sufferings which existed previously to the operation, almost immediately disappeared. The half of the leg, and the whole of the foot were paralyzed, and a sensation of pricking and itching were felt in the same parts. The sensibility of the internal part of the foot and leg was very obtuse. After five months, the cure was complete.

35. *The high operation for the stone.*—M. Civiale, candidly acknowledging that the operation of lithotrity is not adequate to all cases of calculus in the bladder, especially where the stone is very large, or the soft parts altered in structure, has devoted much attention to the comparative merits of the different modes of lithotomy. He is convinced of the superiority of the operation *above* the pubis when performed in the simple manner characteristic of modern surgery. He succeeded in extracting with safety to the patient a very large calculus which had been long embedded in the bladder, and which could not have been removed by the usual operation below the pubis. He believes, with many other authorities, 1st, That the high operation can successfully be performed under circumstances which appear to contra-indicate it; 2d, That the flow of urine through the wound is no obstacle to cicatrization; and 3d, That in some cases full of danger, the operation may be successful.—*Revue Med. for July.*

36. *Diffused false aneurism.*—In a case of diffused aneurism from a punctured wound of the femoral artery, where it perforates the adductor tendon, Dr Mott was under the necessity of securing the external iliac artery. This was done with success. The diagnosis was difficult. For details, vide *American Jour. of Med. Sci. for August last.*

37. *Traumatic erysipelas.*—M. Larrey has published one volume of Clinical Surgery, which must be valuable from the known talents and extensive experience of this deservedly celebrated surgeon. The volume is reviewed at length in the July No. of the *Medico-Chirurgical Review.* In traumatic, and even

spontaneous erysipelas, he strongly recommends the actual cautery; as producing little pain, diminishing the heat, redness and tension of the affected parts. He says, it is never followed by gangrene or suppuration, but ends in small dry eschars which leave no sensible cicatrix, and rapidly improves every symptom.

38. *Traumatic tetanus.*—Amputation, after tetanic symptoms have appeared in severe injuries of the limbs, has been considered not only a useless but dangerous practice. Larrey, however, relies greatly on this practice—it is his chief dependence, and he is induced to ask whether in tetanus, arising from a slight wound of an extremity, amputation should not be resorted to as soon as the tetanic symptoms appear, other measures being very doubtful?

Where amputation is impossible, incising the wound or cicatrix is recommended; and also the actual cautery, iron heated to incandescence, which has speedily effected the most surprising and unexpected recoveries.

39. *High operation.*—We have given above a favourable notice of this operation. The English surgeons are less disposed to recommend it. The following is its character in the view of Mr Brodie as published in the *London Medico-Chirurgical Review.* "I have seen it done several times, and it was always what I call a bungling operation. It is more difficult, more hazardous, unjustifiable, except where the stone is too large to be removed by an incision in the perinæum. In such a case, I think the recto-vesicle operation is more applicable."

40. *Lithotomy in the female.*—This may be performed very easily by an incision downwards and to one side, or by an incision upwards, and then dilating the passage without cutting into the cellular membrane. This last, says Mr Brodie, is the best method—but there is much danger of subsequent incontinence of urine. Mr B. prefers *dilatation* to cutting. "In my cases of dilatation the patients did not ultimately suffer from incontinence of urine, though they had some for a time after the operation."

41. *Removal of a tumour, fifty-six pounds in weight.—London Med. and Phys. Journal.*—The patient, Hoo Loo, was a Chinese labourer, who was induced to visit England for the purpose of having an enormous tumour removed from the anterior and inferior part of the abdomen, which, it is stated, was of a nature and extent hitherto unseen in England, although a particular description is not given. It appears, that it began originally in the prepuce, but that it did not involve the body of the penis, the cord or testicles—but enlarged so as eventually to extend from a little below the umbilicus to the perineum near the anus. A consultation was held at Guy's Hospital by Sir A. Cooper, Mr Key, and Mr Callaway, and it was determined to attempt the extirpation, endeavouring to preserve the genital organs. Mr Key was the operator and is said to have distinguished himself on the occasion. Suitable flaps were made for covering the penis and testicles, but it was soon found that the attempt to preserve these organs would consume too much time, and it was abandoned. A long period nevertheless elapsed before the conclusion of the operation, and by the time the tumour was entirely separated, and the exposed parts closed over, an hour and forty-four minutes had passed. This protraction was chiefly occasioned by the intervals which were allowed for the recovery of the patient from the fits of exhaustion which supervened. Complete syncope occurred twice, and during the whole of the latter steps of the operation he was in a state of fainting. The quantity of blood lost was variously estimated, and although chiefly venous and not large, was, in the opinion of the operator, the immediate cause of death. The number of large veins divided was immense, but only three small arteries, besides the two spermatic, were taken up. Syncope was almost continuous during the last half hour; a complete fit of fainting came on after the removal of the tumour, from which the patient scarcely reacted, notwithstanding the use of all the approved methods of resuscitation; transfusion, and artificial respiration not excepted. The patient did breathe after the operation, but that is as much as can be said. He was 32

years of age, and the tumour had existed for ten years. Its weight was conjectured to be about 70 pounds, but after its removal, it weighed 56 pounds. The circumference of the mass was four feet, that of the neck two feet, each side of the neck, which was about equilateral, measuring eight inches. When the patient stood upright, the lower part of the tumour reached considerably below the knees. It was decidedly steatomatous.

Post mortem examination revealed no diseased condition of the tissues and organs.

42. *Lithotrity.*—This operation is gaining favour by the silent but irresistible testimony of facts, and this even in England. Our readers are acquainted with the fact, that the operation has been successfully performed in that country by Baron Heurteloup, who has published an account of fourteen successful cases, which occurred to him in little more than eighteen months. The reviewer in the *London Med. and Phys. Jour.* styles the operation "one of the most important improvements in modern surgery," and we trust that American surgeons will no longer refuse credence to the testimony of their European brethren, but at once follow the brilliant and successful example already presented by their countryman, Dr Alban G. Smith. (Vide our last number.) It only requires suitable instruments, and moderate industry to render any one at all qualified for the practice of surgery, a skilful operator in this branch of his art.

43. *Excision of a Portion of the Rectum.*—In former numbers of this Journal we have noticed Lisfranc's operation of extirpating portions of the rectum for cancer and other unmanageable affections; an operation which many regard as dangerous and unpromising. The following interesting and successful case has occurred in England and is recorded in the *Lond. Med. and Phys. Journ.* for April last. Anne Kay, aged thirty-eight years, the mother of three children, the youngest being born several years ago, has for the last two years experienced much uneasiness and pain about the rectum, loins, &c. with occasional discharge of blood from the bowels. For the last six months has been the subject of amenorrhœa. Upon examination of the rectum, on her admission into the Middlesex hospital in December last, it was felt to be indurated and ulcerated for the extent of two inches; but the finger could be passed beyond the hardened part into perfectly healthy structure. Various remedies were ineffectually tried, and as the patient's suffering continued to increase, Mr Mayo determined to remove the diseased part.

The operation was performed on the 25th of February in the following manner. The patient was laid upon her side, with the hips and knees bent. The fingers being then introduced into the rectum, the knife was plunged into the perineum, on one side of the bowel, and, an incision of some depth being thus made laterally, the dissection was continued forwards from thence, so as to separate the vagina from the rectum. The dissection was then continued entirely round the rectum, including half an inch of integument, with the sphincter muscle. By this means, a length of two inches and a half of the extremity of the rectum was separated from the adjacent parts: it was then cut off with the scissors from the sound rectum above. The operation was performed slowly, and the vessels, about nine in number, were tied as they were divided. The patient lost about twelve or fourteen ounces of blood.

The case has gone on most favourably. Two hours after the operation, when the smart of the wound had began to subside, the patient observed that she felt entirely relieved of the pain and distress from which she had suffered so many months.

The appearance of the wound is singular: the extremity of the bowel is not more than half an inch from the cut edge of the skin, and the intervening granulations are healthy, and cicatrizing rapidly. The bowels act regularly once a day; the patient being conscious as formerly of the presence of feces in the rectum, about five minutes before they are discharged.

When the part was examined, it was found to include a third of an inch of healthy intestine; the disease extended from the anus full two inches along the bowel, which was thickened and indurated, and the middle inch of the diseased portion was in a state of ulceration.

In the June number it is stated that this woman is much improved in every respect: the general health is better, and the sufferings she experienced from the disease are entirely removed by the operation. The most important point to notice is, that she can perfectly retain solid feces. When under the influence of purgative medicine, the contents of the bowels are discharged rather quickly, but it seems far from impossible that in time the firm cicatrix of the wound, assisted by the action of the muscular fibres of the bowel itself, will form a sufficient substitute for the sphincter muscle which has been removed.

44. *Empyema. Paracentesis Thoracis.*—Mr Mayo performed the operation of paracentesis thoracis for empyema, which rapidly formed in consequence of a blow on the chest, fracturing the ribs. The accident occurred to a boy, aged fifteen years, on the 21st of March; on the 25th there were rigors; on the 30th it was evident the patient breathed only with the right side; the heart could not be felt on the left side of the chest, but beat strongly in the epigastrium and upon the right side. No fullness however was evident on the left side, and the breathing was not very oppressive. On the 14th of April fullness and fluctuation were evident. An oblique opening was made and eighteen ounces of pus were discharged; a considerable quantity of cotton wool (something more appropriate might have been employed) was then placed upon the wound, with the ordinary rib roller to support it. The pus continued to flow for several days; the breathing was relieved; the heart could soon be felt in its natural situation; the appetite returned; the tongue became perfectly clean; sleep easy and refreshing, and the strength greatly improved. The discharge is now (May 17th) daily diminishing and the boy likely to do perfectly well.—*London Med. and Phys. Journ., June* 1831.

VIII. MIDWIFERY.

45. *Relation of a case of labour in a female with deformed pelvis. By George Fox, M.D., of Philadelphia.*

On Tuesday, June 14th, 1831, I was called about seven A.M. to see Mrs R——— in labour with her first child; this is stated to have commenced about one A.M. The pains, as are usual in the commencement of labour, were feeble, short, and at about ten minutes interval. Upon examination per vaginam, the projection of the sacrum was immediately felt; not, however, suspecting the deformity which was subsequently found to exist, this was not at the time particularly attended to, the os uteri was sufficiently dilated to admit the finger and feel the protruding membrane. I was struck with the form of the sacrum, the rectum being very much distended with feces, thought it might in part be occasioned by this. Directed ol. ricini one ounce, which was taken immediately; at noon found, upon examination per vaginam, that the membranes had ruptured, the head presenting: she was not aware at what time the waters had escaped. In the evening the rectum being unloaded by the operation of the oil, I made a more minute examination, and was sensible of great deformity of the pelvis, though not to the extent we afterwards ascertained, the pains not being at all active. As it was late I determined not to ask the assistance of my medical brethren till the following morning; therefore directed an anodyne (which I subsequently ascertained was not taken from her dislike to laudanum and fear of its retarding her labour) and left her for the night. Was called up about one o'clock the next morning, her pains being more frequent and stronger; found the os uteri rather more dilated, and the external parts very rigid, preventing an accurate examination of the pelvis; I remained with her some hours; subsequently called upon Dr James, who met me in consultation at half past eight A.M. In consequence of the rigidity of the soft parts, we found it impossible to make any satisfactory examination; we therefore concluded it best she should be bled and take an anodyne—that we would meet in the afternoon: she was accordingly placed erect in bed and bled to incipient syncope, which was after losing about fifteen ounces; twenty drops of laudanum were soon after given. In the afternoon Dr James again saw her: from as accurate an examination as we were capable of making (for the external parts still continued rigid, though somewhat relaxed since the bleeding), we came to the conclusion that there were not at most three inches in the antero-posterior diameter; that laterally there was rather more room, on the left more than on the right: the posterior lip of the os uteri was swoln and succulent, forming a cushion in front and a little below the projection of the sacrum; the head was presenting to the left side, its exact position could not be determined. On account of the unusual interest of the case, Drs Meigs and Lukens were invited to attend; Dr James not feeling quite well did not meet us that night: the result of the examination of these gentlemen was, that there was not more, if as much room at the superior strait as we supposed; they coincided with us in the opinion that it was impossible the child should be born alive per vias naturales: our next object therefore was to ascertain whether or not the child was living; this was rendered certain by the application of the stethoscope; the pulsations of the child's heart were distinctly perceived, whilst the placental soufflet was also very evident; the pains continued as they had been most of the day, recurring every four or five minutes: we remained with her some hours, when we ordered her an opiate and agreed to meet at four A.M. The result of this meeting was, that as the proper means of proceeding was of such immense importance, further advice should be had, and that we should meet at half past eight o'clock A.M. Dr Physick was called on but was confined to the house by sickness; Dr Dewees was also called for, but was absent from the city. At half past eight A.M. Dr James met us, Dr Hewson being added to the consultation: it was agreed as before stated, that it was impossible the female should be delivered of a living child per vias naturales; the question then was, whether the child should be sacrificed to save the mother's life or an attempt made to save both mother and child. It was concluded, as the strength of our patient was good, her pulse only eighty-four and strong, as there were no symptoms of constitutional irritation, no injury would result from a few hours delay; we therefore separated to meet at twelve M.

The consultation was held at the appointed hour; by this time, after repeated and the most accurate examinations that the case admitted of, we were unanimous in the opinion that there were not more than two inches in the antero-posterior diameter, most probably only one inch and three quarters; the different methods of proceeding which have been proposed in similar cases were duly and maturely considered, viz. the division of the symphysis pubis, the cesarean operation and cephalotomy; the first was considered inapplicable to the present case; the cesarean operation was thought to be attended with so much risk to the mother as almost to be necessarily fatal, some of the most distinguished surgeons being decidedly opposed to its performance. Dr Physick, who was called upon in the course of the morning by Dr Meigs and myself to ask his opinion on the propriety of this operation, was decided and positive in his opposition to it; under the weight of such authority the idea of the cesarean operation was abandoned. It was therefore concluded after the most mature deliberation and upon viewing the case in all its bearings, that the life of an imperfect being (for it was again ascertained that the child was living and apparently vigorous) should be sacrificed to save the life of a wife, a daughter, and that the operation should be immediately commenced, by opening the child's head, breaking up the brain and allowing some hours to elapse before attempting extraction; at my request, with the approbation of our colleagues, Dr Meigs consented to perform it; Drs James and Hewson having professional engagements were at this time obliged to leave us, to meet again at six o'clock, P.M. Preparatory to the operation, the rectum was unloaded by an enema, the urine drawn off by a catheter, and an anodyne administered; her pulse was one hundred and four: the consent of the patient, her husband and friends having been obtained, she was placed at the foot of the bed (which had previously been adjusted), the hips being on the edge, so that the perinæum was perfectly free, an assistant supporting each leg; Dr Meigs then took his seat directly opposite, made another examination preparatory to beginning the operation; after having some time carefully examined, he called me, and subsequently Dr Lukens also, to make another examination, the result of which was, that the operation of cephalotomy, if not altogether incompetent to the delivery, would be attended with as much risk to the life of the mother as the cesarean operation; it then appeared to us impossible that the cranium should be removed and the base brought through the superior strait, without the most violent exertions and great danger of lacerating the cervix uteri, vagina, &c.; that taking this view of the case, it was better to call our colleagues again together, at as early an hour as possible, to reconsider the propriety of performing the cesarean operation: the child was again ascertained to be alive.

Accordingly at five P.M. we again met; Dr J. Rhea Barton at this time saw our patient; our first object was to ascertain respecting the life of the child, and upon applying the ear and the stethoscope, no pulsation was perceptible in any part of the uterine region; it was then unanimously agreed (the female not having felt the child for two or three hours) that it was dead: there was now no farther hesitation as to the propriety of cephalotomy, which was immediately performed by Dr Meigs, who employed the utmost assiduity and care in the management of the operation, on whose skill and unwearied attention the success of it is mainly dependent; to him I am also indebted for the following account of the difficulties, &c. which were experienced in the accomplishment of the delivery of the child.

"The woman being conveniently placed on her back, with the perineum projecting beyond the edge of the bed, and the legs and feet properly supported by an assistant on each side, I took my seat for the purpose of proceeding with the first part of the operation, the perforation of the cranium.

"A suture crossed the pelvis from front to rear, but its edges were overlapped and could afford no facilities for the operation. This suture was the right leg of the coronal, as was afterwards ascertained.

"With Botschan's improved craniotomy scissors I endeavoured to penetrate the solid bone in the centre of the strait, but owing to the narrowness of the passage, and the constant interference of the os uteri, the lips of which were nearly in contact antero-posteriorly, I dared not to give to the instrument that rotatory or drill-like motion which was necessary, for without such a movement it was impossible to make any progress, as the head rose upwards and rolled freely in the superior basin whenever any considerable pressure was applied to the perforator, though the womb seemed to be pretty firmly contracted at the same time.

"Finding this mode of proceeding unsafe for the woman, I begged permission to leave her a few minutes in order to procure an instrument better adapted to the purpose in hand. Accordingly, Mr Rorer furnished me with a large trocar with a triangular point, and having guided it with two fingers to the proper situation and kept it securely by retaining the fingers in contact with the head, I was able gradually to drill a hole through the bone, the head being pressed from above against the strait by Dr Lukens. Two other perforations were made near to the first one in the same cautious manner: after which I again introduced Botschan's scissors, and having opened them, found that I had made an incision of about an inch and a half in length. Through this a slender blunt hook was introduced into the cavity of the cranium and the brain very freely broken up.

"The poor woman, who was already very much exhausted by many hours of labour, now took an anodyne and was left to her repose, in order that the medullary matter might be gradually pressed out, and the cranium allowed to collapse so as to come more in reach of the instruments.

"At ten o'clock P.M. I again met Drs Fox and Lukens, and the woman being disposed as before on her back, I introduced a crotchet into the cavity of the cranium and spent some time in extracting the medullary substance, not much of which seemed to have been expressed during our absence; the head still continued on the superior strait, except a portion of the hind head which was passed down into the excavation to the left of the promontory, where there appeared to be the largest space.

"Having removed a considerable quantity of the cerebral substance, I fixed the tooth of the crotchet into the cranium, and guarding it on the outside with a finger, exerted a very great amount of force, which had not the least effect in drawing it lower down.

"It soon became evident to me, from several trials of this kind, that no exertion of mere strength could be of any avail to drag away the head, and if it was to be delivered at all, it must be piece meal: but as the child had been dead only a few hours and its skull bones were still firmly united to their inner and outer membranes, it will be readily conceived that the removal of the bones was a most difficult matter, not only on account of the firmness of their connexions but also on account of the narrowness of the passages, the great hardness of the skull, and the great danger of wounding the parts by the slipping of the crotchet, which, under the circumstances, could be best applied on the interior of the skull, and from the swoln and succulent state of the lips of the os uteri, whose inner surfaces were in contact, and presented to the touch the idea of a long fissure instead of preserving a round or oval form: last and not least, the perineum was so strong and unyielding that the greatest inconvenience arose from its pressing the fingers against the arch of the pubis with such force and so painfully that no one could endure for any great length of time to keep up the necessary extension.

"Being possessed of one of Dr Davis's osteotomists, I expected to derive great advantages from its employment in the case, and accordingly introduced it with the view of cutting away portions of the bone, but the constricted state of the parts rendered it impossible to make use of it consistently with a humane regard to the safety of the patient.

"Having ascertained, then, by fair experiment, that mere force could do nothing in the delivery, I resolved to pursue the intention of breaking up the head by means of the crotchet; and it was with great fatigue to the woman, that I picked out altogether about as much as would equal the size of one of the parietal bones, the portions consisting of fragments of the right parietal and part of the frontal bone.

"Finding towards morning, that the progress of the operation was exceedingly slow, I went out and procured a pair of straight tooth forceps, with which I could take a firm hold of the bone and twist off portions, which after they were broken away, often took a good while to separate from their adhering membranes.

"At four o'clock, the woman was so much fatigued that we agreed to give her an anodyne draught, and leave her to recover strength by means of a few hours rest.

"The attempts at extraction had now continued from 10 o'clock P.M. until 4 A.M., and I think the whole of the bone removed would not much exceed in quantity one parietal bone at full term; it seemed impossible to proceed with greater rapidity, and I often admitted a doubt, whether I should be able to deliver her before death should come to her relief.

"Throughout the day on Friday, the attempts at extraction were repeated in presence of the gentlemen last named, and also of Drs. James and Hewson, who became fully satisfied, that no greater progress could at present be made, considering the circumstances of the woman.

"Early in the afternoon, symptoms of fever became very manifest, the pulse rising to 112 strokes in the minute, with considerable firmness and volume, this state of the circulation being coincident with a distressing eructation, partaking somewhat of the character of singultus, a great distention of the abdomen, as well as of the womb itself, from gases extricated within them. She complained, also, of great soreness of the belly, on which account she had it bathed frequently with cold vinegar and water, leaving the surface exposed to the air.

"In order to counteract this new state of things, she was bled six ounces and took a portion of castor oil.

"Dr James who had witnessed in the morning the difficulty with which the extraction of portions of the cranium was effected, was good enough to supply me with a complete set of Dr Davis's craniotomy forceps, and returned to the house in the afternoon to our assistance. These instruments were applied, but they were incapable of effecting so much as even the straight tooth forceps. The teeth of the instrument could not be made to penetrate the skull, although most accurately adjusted; and notwithstanding the handles were brought so nearly together, that the style on the one handle went quite to the bottom of the socket in the other, every attempt to extract with them resulted in the slipping of the bone out of the gripe of the instrument: a proof at once of the hardness of the bone, and of the impossibility of bringing it down in its then condition.

"Putrefaction now rapidly advanced as indicated by the odour of the discharges, and my only hope for the escape of the patient rested on the opinion, that she might be supported a few hours, until the softening of the tissues should enable me to draw down larger portions of bone by admitting of the pericranium and dura mater being peeled off with a finger nail, while the bone should be secured, and drawn down with the forceps or crotchet.

"But such was the unpromising state of affairs, that the poor creature resolutely refused to make any further effort to escape, saying she knew that she must die, and would rather die than exert herself any further, and begged in the most piteous tones that all further attempts to deliver her should be abandoned, yet expressing her thanks for the efforts that had been already made.

"She was, at times, slightly delirious. After explaining to her the increased facility which began to exist, from the rapid decomposition of the fœtus now going on, and endeavouring to reassure her with a promise to deliver her in the course of the night, she was again left to rest three or four hours under an anodyne draught. During the whole period that has now been spoken of, the anterior lip of the os uteri was behind the triangular ligament of the pubis, and the posterior low down beneath the promontory, and strangulated, as it were, or buttoned by the part of the head that lay on the strait and partly within it; yet so swelled that their inner surfaces continued nearly in contact, except when parted by the introduction of the fingers.

"The perineum seemed to have acquired no disposition to relax, notwithstanding all the handling to which the parts had been subject; and, excepting that the bones were more easily detached now than before, no greater comfort or facility was enjoyed by the operator now than at the commencement.

"At 10 P.M. I again met Drs Fox and Lukens, and the patient after much entreaty and argument resigned herself unwillingly to the further prosecution of our attempts to deliver. The remains of the head were still high up, but some of the broken edges came lower down. I got hold on a piece that descended behind the pubis, and with the tooth forceps pulled it downwards, detaching the membranes as it advanced, and found that it consisted of all the remainder of the right parietal bone. I next got away nearly the whole left parietal, and afterwards with the crotchet removed first the right, and then the left orbitar portion of the os frontis, which was all that remained of that bone. I then got away with the crotchet and forceps the right superior maxillary, and afterwards the left superior maxillary bone. I subsequently twisted off the greater part of the broad portion of the os occipitis, and the squamous parts of the temporal bones; so that I had nothing left now but the base of the skull and the lower jaw, which latter I left as a point on which to exert the tractions that were soon to be required.

"If the estimate made by all the gentlemen, that the strait was not more than two inches in its antero-posterior diameter should prove correct, I was fearful of meeting some difficulty in bringing the base of the skull, which was two and a half inches, through it; but when I had reduced the head so as to leave nothing more than the base of the skull and the lower jaw, I fixed a blunt hook into the latter, and with a finger to antagonise it, drew the mass down towards the point of the coccyx and had the satisfaction to find that it was now quite through the strait. My hand being now introduced into the vagina, I got a firm hold of the neck, and with the exertion of the greatest strength, gradually brought the button-like remainder of the head out at the vulva, while the point of the thorax, of course, was entering the narrow pass. The head was delivered at a quarter after one o'clock, and having succeeded in effecting the most difficult and dangerous part of the operation, she got some ergot; and fastening a twisted towel round the neck of the fœtus I renewed the extractive efforts, which in twenty minutes enabled me to deliver the shoulders, and in twenty minutes more, the hips—the child being completely withdrawn at five minutes before two o'clock, which was forty minutes after the head was delivered.

"I found that, under the stimulation of the ergot, she was enabled to bear down very strongly considering her exhausted state, and at all events, the chief object of its exhibition was secured, viz. a firm contraction of the womb, and an effectual separation of the placenta, which came into the os uteri soon after the delivery.

"Large quantities of gas of the most putrid odour followed the extraction of the child, showing the enlargement of the womb, before spoken of, to have been owing to its extrication by the putrefactive processes going on in the uterine cavity.

"The cord was shrunk and black, and the placenta, which was also black, and filled with air, so as to crepitate under the fingers, was so horribly noisome that it was scarce possible to endure it during the requisite handling of it. No blood followed the placenta.

"The body was soft and putrid, being completely emphysematous and crepitating like the placenta. The cuticle was peeled by the pressure and friction.

"The child was rather above the medium size.

"After washing the poor creature with a sponge dipped in claret and water, and making her as dry and comfortable as possible, she got an anodyne and was left to rest, being unable to speak above a whisper, and with a pulse feeble but beating only 102 strokes per minute.

"The whole difficulty in delivering a child through so contracted a pelvis can scarcely be conceived of by one who has not been engaged in such an operation. The constant and perplexing apprehension of injuring the mother either with the instruments employed, or with the sharp and ragged edges of the bones which must be withdrawn, and sometimes violently broken off with the sharp tooth of the crotchet, involves the operator in the most painful and unremitted attention and watchfulness. The confusion also in the parts, arising from the remains of the scalp and the inner and outer membranes of the cranium blending themselves, as it were, with the os uteri, and covering and concealing the bones, is a source of great embarrassment, where those fibrous tissues retain so much firmness and compactness.

"Doubtless, could we have known that the woman could have been able to bear the fatigues of labour so long, we should have deferred the efforts at extraction for 24 hours after the perforation of the head; but such was not the opinion to be gathered from [illegible] actual phenomena.

"It has been seen that no great loss of time took place, after the softening of the tissues rendered it possible to break them up with some facility, whereas the process previously was exceedingly slow and tedious. The perforation was deferred as long as possible, which saved us from the dreadful and cruel operation of cephalotomy in a living fœtus. The child died from long continued pressure."

June 18th, (Saturday) 9 A.M. Our patient says she feels quite comfortable; had some sleep after we left; pulse 112, rather more feeble; skin moist, tongue slightly furred; clean linen, &c., was put on her, and she was moved up in bed. The bladder was emptied by the catheter; fomentations with flaxseed mucilage directed to be applied to vulva, the most perfect rest and quiet strictly enjoined; as diet, arrow root and oatmeal gruels, tea and toast.

Evening. Remains much the same, bladder again emptied, mucilages continued, an anodyne to be given at 10 P.M., if at all restless.

19th, 9 A.M. Passed a comfortable night, pulse 94, skin pleasant, tongue slightly furred, lochia almost natural, free from pain, slight soreness over pubis to left side, directed warm brandy to be applied over soreness, a seidlitz powder to be given and repeated if necessary; continue other means.

Evening. Medicine not having operated, an enema of warm flaxseed mucilage was directed, and an anodyne at bed time.

20th. Rather restless in the early part of the night, enema operated freely, feels very comfortable, no pain, pulse 76, skin pleasant, tongue continues slightly furred, countenance good, spirits cheerful; continue as before.

23d. Our patient continues to do well, usually rests well at night, free from pain, although the soreness in uterine region continues, secretion of milk copious, feels so comfortable that she has taken an infant to nurse, pulse rather more frequent than natural; tongue clean and moist, bowels costive, passes urine without difficulty, the catheter was used three times daily till last evening, when it was found to be unnecessary, lochia serous; directed ol. ricini, one ounce. Mucilages to vulva to be continued, mucilaginous injections per vaginam, continue diet, and perfect rest in horizontal position.

From this time our patient continued rapidly to improve; in three weeks from the time of her delivery was so well as to be permitted to go down stairs, and in a short time resumed her ordinary avocations.

The subject of the preceding case is a native of Ireland, aged about 22 years, of small stature, not exceeding four feet and a half; is stated to have been a healthy child till her third year, when she received an injury by a fall, after which she was unable to stand or walk for two or three years; at the expiration of this time she regained her strength and was subsequently considered an active child. Upon examination, we found the femur and tibia of each extremity very much curved, forming a considerable arch forward; at the lower part of the spine, there was a cavity sufficiently large to admit the hand corresponding with the promontory of the sacrum internally; the bones of each arm partook of the general disease. It was evident she had in early life laboured under rickets.

46. *Diagnosis of Twins.*—In the *Review of the Medico-Chirurg. Trans.* at the commencement of this volume, and under the head of Physiology in the Quarterly Summary, will be found a notice of mediate auscultation as a means of detecting pregnancy. Dr Nagle, of Dublin, has published two cases in the Lancet, in which the existence of *twins* was clearly ascertained by the stethoscope, some time before parturition. We shall copy one case from the *Medico-Chirurg. Review* for April, believing that in many, probably not in *all* cases, double pregnancy may be thus recognized.

"On the 15th of October (1830), a female in her first pregnancy was admitted into the Lying-in-Hospital, Dublin. The abdomen was, in this case, so enlarged as to lead to the suspicion of twins. Having applied the stethoscope, a sheet being interposed between its extremity and the abdomen, I found a fœtal heart pulsating strongly, rapidly, and rather irregularly, midway between the umbilicus and the superior anterior spinous process of the *left* ilium. By a minute examination, I satisfied myself that the cylinder was applied immediately over the fœtal heart, with the rhythm of which I took particular care to make myself familiar. I next directed my attention to the other parts of the abdomen, still hearing the pulsations of a fœtal heart, until I came on a point where they were most distinctly audible. This greater distinctness of resonance, I found to be nearly under the linea semilunaris, between the umbilicus and the anterior inferior spinous process of the *right* ilium. The pulsations here, I immediately recognized to be weaker, less rapid, and less regular in rhythm, varying from 125 to 133 in a minute, whilst those on the left side varied from 160 to 170. The mother, labouring under a smart bronchitis, was occasionally attacked with a severe fit of coughing, during which the abdomen receiving a strong concussion, the pulsations of the fœtal heart on the right side were remarkably accelerated, whilst those on the left were scarcely at all affected. In order to draw a diagnosis, I compared, with as much accuracy as I was capable, the pulsations on both sides with each other, and then each separately with the impulse at the chest and the pulsations at the wrist of the mother. The diagnosis was that there were twins; and I may add, that auscultation induced me to predict that the head of the second child would present." The event confirmed the diagnosis: the woman was delivered four days afterwards of twins, the *heads* of both presenting. There was a single placenta.

In another case, also at the Hospital, the existence of twins was detected, although the female was confident that the child was dead, as she had ceased to feel its motions.

47. *Partial inversion of the uterus.*—Dr H. S. Bellambe reports in the *London Medical Gazette*, that on the 30th of January 1831, he visited a young married lady who had been delivered twelve months before of her first child. The labour was tedious, but natural. The child being expelled, the placenta was pretty forcibly pulled down, and the extraction gave her much pain. Since that period, there was a constant sanguineous discharge, which resisted the usual remedies; the patient became debilitated, pale, and exsanguined. On examination, an inversion was discovered; the tumour formed a large spherical pouch, projecting considerably from the os tincæ, which remained in its proper position, so that the fundus having passed completely through the os uteri, remained strangulated by the cervix. It was very painful to the touch, and continually bleeding. M. Brown, surgeon, was called in consultation and succeeded in effecting the reduction by firm pressure upon the pouch, and pushing steadily upwards, while some support was afforded by the hand on the abdomen. The pain was excruciating, and the operation was difficult, from the long period of inversion, the great engorgement and strangulation about the cervix, and the extreme irritability about the parts. The hemorrhage ceased; some irritative fever succeeded, but by the 19th of February the patient was so far recovered, as to be able to return to her home in the country.

48. *Prolapsus and rupture of the uterus during labour.*—A case noticed by Dr Henschel of Breslau, and recorded in *Siebold's Journal. Archiv. General. Jan.* 1831. A female aged 30 years, the mother of several children, after her late confinements, suffered a prolapsus of the uterus, to which no attention was paid. She became pregnant, and at the end of the 8th month, labour commenced. It progressed regularly, but after some hours, the inferior segment of the uterus passed from the vulva, and presented between the thighs, a large cylinder, six inches long and two in diameter, terminating inferiorly by an orifice with very thick edges, thinner towards the pubis, and presenting on its surface many livid spots.

The head of the child presented at the vulva, and the strong and rapid pains would have quickly effected a delivery, if an insurmountable resistance had not been opposed by the large portion of prolapsed uterus. Dr Henschel applied the forceps, and thus drew the head to the orifice of the uterus, but at this moment a rupture commenced at the superior part of the uterus, and, although the forceps were immediately removed, it was continued by the passage of the head. The child, although born alive, soon perished. The placenta being removed, the inferior portion of the uterus contracted, but still remained of considerable magnitude. The reduction of the uterus was immediately effected. The rupture was at the superior margin of the cervix uteri, and at first was half an inch in length; but it immediately diminished in consequence of the contractions, and eventually no trace of it remained. The consequences were at first somewhat threatening; the torn segment did not completely contract before the 8th day, and a purulent matter flowed with the lochia. The patient could, however, leave her bed on the 10th day, and at the end of the month was perfectly restored.

49. *Cesarean operation.*—In the *Archiv. Generales* for February, is a notice of a Thesis published at Paris by M. Jolly, in which the author records the experience of his father, a surgeon at Chateau-Thierry, who has six times performed the cesarean section. In all the cases, labour had lasted for forty-eight hours,

and the waters had been evacuated. In one case only, the female had not been fatigued by vain attempts at delivery. The incision was always made on the middle line, between the umbilicus and the symphysis pubis, and the uterus was cut in the same direction on its anterior surface. No hemorrhage followed, and rarely were more than two ounces of blood lost. Gastro-raphe was always resorted to, and far from causing the accidents which have been referred to it, it has always had the most happy influence on the prompt cicatrization of the wound. In two cases, not the least accident supervened, and the cure was perfect before one month; in two others, an active inflammation in the abdomen was successfully resisted by leeches (saignées), baths and emollient fomentations; in the two last cases, the patients sunk into a metro-peritonitis; one on the fourth day, the other after a longer interval, at a time when every hope was entertained of a cure by antiphlogistics; death was caused by indigestion.

Four infants were preserved: two others were dead when the operation was performed; before they had been considered as alive. No hernia supervened as a consequence of the operation; but there was always a prominent line corresponding to the cicatrix, which was from three to six inches in length.

These statements, the truth of which there is no reason for doubting, should be remembered, as this operation in France is said to have been fatal in the proportion of one to two, and in England, almost every case has terminated unfavourably. In Germany, success is much more general, as may be observed by referring to the Quarterly Summary in the preceding volumes of this Journal. The causes of this difference have been stated and perhaps truly as depending not on the dangers of the operation considered by itself, but on the varying condition of the system of the mother. In Germany, the section is made as soon as it is ascertained that a deformity exists sufficiently great to prevent the delivery of a living child, provided the child be alive; while in England, it is the last resource of the practitioner who has exhausted the vital powers of his patient by abortive and injurious attempts at delivery, and then when she is almost in articulo mortis, ventures on this severe operation.

IX. CHEMISTRY.

50. *Solid Perchloric Acid.* M. Serullas recently stated to the French Academy, that, being occupied with some combinations of perchloric (oxychloric) acid with the vegetable alkalies, he ascertained that it formed with many of them perfectly crystallizable salts. This circumstance led him to suppose that this acid might exist in a concrete form. To determine this point, he distilled perchloric acid with three times its weight of concentrated sulphuric acid. The mixture, being heated to ebullition, caused a disengagement of chlorine which gave a yellow colour to the liquid, and of perchloric acid vapour, which, being conducted through a tube surrounded by ice, was partly condensed into a crystallized solid and partly into a liquid. The crystals did not contain sulphuric acid, as the heat was not sufficient to raise that acid in the distillation. They had the form of transparent prisms. Exposed to the air, they emitted dense white vapours. The liquid part when dropped into water caused a sound similar to that occasioned by a red-hot iron dipped in that liquid, and when exposed to the air in a watch-glass, one part volatilized so quickly as to cause the solidification of the remainder. M. Serullas was unable to determine whether the acid, in the state in which he obtained it, is anhydrous.—*Journ. de Chim. Med. Avril* 1831.

51. *Iodide of Lead.*—M. Caventou, having received a formula for an ointment of iodide of lead, was induced to undertake the preparation of this new medicament. With this view, he made two solutions, one of a 100 parts of iodide of potassium; the other, of 75 parts of acetate of lead. The two solutions were mixed, and a handsome yellow precipitate was immediately formed. This precipitate was received on a filter, washed, and drained; but as time press-

ed, M. Caventou performed the washing with boiling water, being led to take this course by the reputed insolubility of the iodide of lead. It was with much surprise, however, that he observed that the washings, upon cooling, deposited brilliant micaceous scales, of a rich golden yellow colour. The scales proved to consist of iodide of lead; so that it is a mistake to suppose that this iodide is insoluble in water.—*Journ. de Chim. Med. Avril* 1831.

52. *New Process for preparing Medicinal Prussic Acid.*—Mr W. Thomas Clark has given, in the *Glasgow Medical Journal*, the following process for preparing prussic acid, for medicinal use, which has the merit, he conceives, of furnishing a product always of uniform strength. Take of tartaric acid 72 grains, cyanuret of potassium 32 grains, distilled water an ounce; dissolve the tartaric acid in the water, contained in an ounce-vial; then add the cyanuret of potassium, and close the vial with a cork or stopper, which must for a short time be retained in its place with the finger. In the mean time, agitate the vial while immersed in cold water, in order to carry off the heat produced in the process. When all action has ceased, set the vial aside in a cool and dark place, for twelve hours, in order that the precipitate formed (bitartrate of potassa or cream of tartar) may subside. Afterwards decant the clear liquor, and preserve it in a cool and dark place.

The rationale of this process is as follows:—Cyanuret of potassium, immediately on dissolving, becomes, by combining with the elements of water, the prussiate or hydrocyanate of potassa. This salt is then decomposed by the tartaric acid, which precipitates the potassa in the form of the sparingly soluble bitartrate, while the prussic acid is set free. A small portion of the bitartrate remains dissolved in the prussic acid; but this is so inconsiderable as to be of no kind of consequence.

Dr Turner, on the authority of Robiquet, gives the following process for preparing cyanuret of potassium:—Expose ferrocyanate of potassa in a crucible to a long-continued red heat, by which means the ferrocyanic acid is decomposed, and a dark mass remains, consisting of cyanuret of potassium, mixed with charcoal and iron. By treating this with water, the cyanuret of potassium is dissolved from the charcoal and iron, and may be obtained by evaporation to dryness. This cyanuret acts on the animal system in the same manner as hydrocyanic acid, and has been recommended by Robiquet and Villermé for employment in medical practice as a substitute for the latter, as being of more uniform strength, and less prone to decomposition than the acid.

Mr Clarke recommends the following more detailed process for obtaining the cyanuret. Heat the ferrocyanate of potassa of commerce moderately, reduce the residue to a fine powder, and heat again. By this exposure to heat, the salt will lose three equivalents of water, and be converted into a white ferrocyanuret of potassium, consisting of one equivalent of cyanuret of iron and two equivalents of cyanuret of potassium. The double cyanuret, to the amount of from forty to eighty ounces, is then put into an iron mercury bottle furnished with a gun barrel and flexible tube, which is to dip under water, and subjected to a smart fire, so long as any gaseous matter is evolved. At this temperature, the cyanuret of iron is decomposed, being resolved into gaseous products, charcoal, and iron, and the cyanuret of potassium remains unaffected. This is then dissolved out by water, and obtained from its solution by evaporation. As it is a deliquescent substance, it should be kept in well stopped bottles. If pure, its solution will not strike a blue colour with a persalt of iron.

MISCELLANEOUS.

State of Medicine in Spain.—From a very excellent review contained in the last number of the *Foreign Quarterly* for July 1831 of Dr Faure's "*Souvenirs du midi, ou l'Espagne telle qu'elle est sous ses pouvoirs religieux et monarchiques,*" we copy the following account of the state of medicine in Spain.

Medicine is in a most degraded and despicable state in Spain; and it is necessary, it seems, that it should continue so, in order not to give umbrage to the clergy, with whom it comes constantly in contact in the bosom of families and at the bedside of the dying. Besides, being considered as leading insensibly to materialism, it has been conceived essential to the interest of religion and its ministers, that this science should be kept down—an object which has been most effectively accomplished. In Spain, physicians and surgeons are in general poor devils, fellows without substance or fortune, who make visits for a fee of ten pence each, or even less, and who, alike ignorant and disreputable, are despised even by those who think it necessary to require their attendance. Throughout the whole country may be read on every sign-post to which a barber's basin is attached, the words *cirujano y comadron*, surgeon and accoucheur; to obtain which grade it is necessary to commence with attendance on infirmary practice in the hospitals, to pass through certain courses, to undergo some sham examinations, and, above all, to pay for a license. Dr Faure, during his stay at Madrid, was served by two aspirants to this honour, who, he assures us, made excellent valets, and reminded him of the great prototype of the race in more respects than one. There are, besides, doctors in the two branches of medicine and surgery, who treat internal maladies, operate upon occasion, though always unskilfully, and fill important situations, particularly the chairs of instruction.

There is not a man in Spain who has established a reputation as an anatomist. How could there be? Actual dissection is impracticable; an attempt to procure subjects would raise an insurrection, and he who made it would infallibly be assassinated. Madrid does not possess a single good anatomical preparation; and with respect to the collection of wax models in the College of San Carlos, of which the Spaniards are so ignorantly proud, even if it were more extensive and complete than it actually is, it could never serve as a substitute for dissection, or enable any one, without other means of instruction, to operate safely, not to say skilfully, on the human body. Physiology has naturally, or rather necessarily, shared the fate of anatomy; and at a time when it has been receiving vast accessions from the labours of the learned in other countries of Europe, the Spaniards have literally contributed nothing to its progress. They boast, indeed, of having illustrated medical jurisprudence; and, certainly, a number of works have been produced on this subject. But in judging of the value of these treatises, and of the credit due to them, respect must be had to the state of medical science in the country where they appeared, and to the comparative ignorance of chemistry, anatomy and physiology, which prevails almost universally among the medical profession of Spain. The knowledge of the obstetric art, which is considerable, has been imported chiefly from France; but there is no good native treatise on this subject; and, indeed, with the exception of Arejula's work on the Yellow Fever, and that of Luzuriaga on the Madrid Colic, we scarcely know of any medical book of Spanish origin which is considered authoritative in other countries; and the last of those just named Dr Faure considers, apparently with justice, as after all but a poor performance. The system of Brown is that according to which the Spanish physicians almost universally prescribe; and if we may credit Dr Faure, they lavish incendiary remedies with a profusion which, in the ardent climate of Spain, must be singularly calculated to keep up the ancient alliance between Death and the Doctor. We may add, that the general hospital at Madrid deserves to be cited as a model of a Spanish hospital, by reason of the filth and disorder which prevail in it. The part allotted to the military is a den of pestilence and death.

The University of Medicine, like that of Law, has been removed from Madrid. It is true that the hospitals and the courts of justice, where students of medicine and law can alone learn the most valuable part of their professions, are all in the capital; but what does that signify in Spain, where knowledge forms no title to distinction, and is more likely to entail persecution than to lead to honour? Accordingly, with the wisdom peculiar to this country, both universities have been removed to the little town of Alcala de Henares, where there are neither hospitals nor courts, and where it is necessary to study in order to take the degree of Doctor in either profession. The students too form a wretched crew, with their black capas hanging in tatters, their naked feet covered with rags, and their lank, greasy, unwashed countenances, expressive of pride, insolence, and misery. The greater part of these tatterdemalions have no other means of subsistence than the soup which is charitably furnished them at the gates of the convents, and the alms which they beg in the streets, where some of them are at all times to be found bawling out, "*una limosna para un poure estudiante*," an alms for a poor student; words which, as the "Young American" observes, they utter in a tone and manner that seems to say, "An alms, and be d——d to you!"

Diseasés of Spain.—From the same source as the above, we obtain the following notice of the diseases peculiar to Spain.

Of the diseases peculiar to Spain, some are local and others general. To the former class belong the yellow fever, which occasionally commits such dreadful ravages on the coast; and that peculiar affection of the eyes, frequently terminating in blindness, which is so common in the central region of Spain. Blindness is the peculiar curse of the whole of this region, particularly the capital, and is by no means confined to the lower classes; many people in the middle and higher walks of life being also afflicted with this melancholy deprivation. "I was so much struck with the number of blind in Madrid," says the author of *A Year in Spain*, "as to seek a cause for it in the ardent energy of the sun in this cloudless region, combined with the naked and unsheltered condition of the country." (vol. 1. p. 323.) According to Peyron, the evil is attributable to an intemperate use of phlebotomy, a practice which is scarcley less prevalent amongst the Spaniards of the present day, that it was amongst their ancestors in the time of Sangrado; at least, if one may judge from the number of persons whose business it is to draw blood, for every street of every town in Spain has its barber, and every barber is a regular phlebotomist. But Dr Faure proposes a different and more scientific solution.

Madrid, situated on a plateau elevated more than 1800 feet above the level of the sea, is in the most irritating atmosphere of all Spain. The wind which blows there, during almost the whole year, from the mountains of Guadarrama, and the fatal effects of which have given rise to so many proverbs, penetrates with an insupportable cold which would affect the strongest lungs, if they were not protected by the skirt of the cloak thrown over the shoulder, as well as adds to the influence of the climate in producing the most painful colics in a great number of foreigners. It is this wind, blowing so frequently, and sometimes so violently, from the month of February to the month of May, which incessantly raising in the air columns of *nitrous powder*, irritates the eyes of a population tainted with scrofulous and venereal affections, and gives rise to those ophthalmias which, from the reverberation of the sun and the coldness of the nights, are sure in no long time to terminate fatally.—Nor is it merely at Madrid that this affection is remarkable; diseases of the eyes and loss of sight are common to the whole of Spain, judging by what one observes as far as Cadiz; because the irritating atmosphere of the Peninsula is generally very much agitated, and the heat of the solar rays is scarcely tempered by any verdure, of which indeed several provinces are entirely destitute.

In short, ophthalmia in Spain is produced by the same causes as in Egypt, namely, by an impalpable nitrous dust, which, lodging in the eyes, creates inflammation; and this again is aggravated by the incessant alternations of intense heat during the day, and chilling cold during the night. The Madrid colic is also an effect of the climate, and always dangerous, often fatal to strangers, who learn, sometimes when it is too late, to take the native precaution against the cold blasts which sweep down suddenly from the Guadarrama mountains, and instantly checking a profuse perspiration, engender this grevious malady. The variolous infection is always more dangerous in summer than in winter, particularly in the central region of Spain; but vaccination, which is now generally practised throughout the kingdom, has tended greatly to abate its virulence. Scarlatina is rare, and by no means dangerous. But there exists an analogous affection, called by the natives *garrotillo*, and known to medical men as gangrenous angina, which sometimes becomes a contagious epidemic, and rages for a season like a pestilence.

"This disease," says Dr Faure, "is frequent in the Peninsula, and we learn from the works which give an account of the epidemic disorders which have affected Spain at different epochs, that it has been familiar there for many centuries, notwithstanding the purity and dryness of the atmosphere, and possibly owing to that very cause."—p. 74.

Another gangrenous malady common in Madrid and in several of the provinces, particularly Andalusia and Catalonia, is *hospital putrefaction*, which, if not endemic, may at least be considered almost inevitable in the hospitals towards the end of summer. At this period the most trifling sores become dangerous ulcers, and very frequently prove fatal. Acute and chronic inflammations of the lungs are also common, and, in the capital particularly, advance with great rapidity to a crisis. Pulmonary consumption is of very frequent occurrence; indeed the tendency towards this disease is constant in some parts of Spain; and, what is not a little remarkable considering the dryness of the air, intermittent fevers generally make their appearance about the beginning of June, when the heat becomes intense. Scrofulous disorders are as common in Spain as in Russia, and even more so; nor is it unusual to meet with mendicants having one or both legs affected with elephantiasis. Cases of epilepsy are by no means rare; whilst hysteria and St Guy's dance (chorea) are frequent in the southern provinces, where the heats are fiercest.

The diseases of the mind, or madness, ought to be proportionably greater there than elsewhere, on account of the action of the sun upon the head, and the want of agreeable occupation under a government, which, by constantly thwarting the reason, keeps the whole population in a state of habitual irritation: And such is unhappily the fact. But it has been found that the prevailing religious notions stamp insanity with a peculiarly sombre and malignant character among the Spaniards. There are three principal establishments for insane persons in Spain; one at Toledo, one at Valencia, and the third at Zaragoza. There is a fourth at Cordoba, but it has been for some time deserted.

Comparative View of the Population of the City and County of Philadelphia.—We derive the following from Hazard's Register of Pennsylvania, Vol. VIII, No 6, a work which we would desire to see more extensively circulated.[*]

"The following table exhibits several views of the white population of the city and county, according to the census of 1830.

"The first column shows the numbers and sexes at the different ages, and the second gives the proportion of the sexes to each other; the third column exhibits the proportion of each sex at the different ages, to the whole number of each sex; the fourth column furnishes the relative portion of the whole white popu population at each age.

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[*] Terms Five Dollars per annum. Published in weekly numbers of 16 pages, quarto.

AGES.	Population of whites in the city and county, according to census of 1830, at the different periods of life.			Proportion of each sex, at each age.		Proportion of each sex, at the respective ages, to the whole number of that sex.		Propor. of the whole at each age, to the wh'e pop. of city and county.
	Males.	*Fem.*	*Total.*	*Males.*	*Females.*	*Males.*	*Females.*	
nder 5 years of age	12941	12414	25355	100	95.92	1 to 6.45	1 to 7.24	1 to 6.83
rom 5 to 10	10804	10597	21401		98.08	7.73	8.47	8.09
10 to 15	9271	9793	19064		105.63	9.01	9.17	9.09
15 to 20	10346	11306	21652		109.28	8.07	7.94	8.00
20 to 30	17547	19334	36881		110.12	4.75	4.64	4.70
30 to 40	11063	11897	22960		107.53	7.53	7.54	7.54
40 to 50	6132	6730	12862		109.75	13.62	13.34	13.47
50 to 60	3112	4068	7180		130.72	26.84	22.07	24.14
60 to 70	1573	2394	3967		152.19	53.10	37.51	43.69
70 to 80	551	961	1512		174·41	151.60	93.45	14.64
80 to 90	167	268	435		160.48	500.21	335.10	398.54
90 to 100	26	40	66		153.84	3212.92	2245.22	2626.43
100 and upwards	3	7	10		233.33	27845.00	12829.85	17334.50
	83,536	89,809	173,345		107.50			

From this table it appears that the proportion of the males to the females, was an average of 100 of the former to 107.50 of the latter—that at the first two periods, there was an excess of *males*—that from 10 to 30 there is a regularly increasing excess of *females*, which again diminishes between the ages of 30 and 40, and then again rises between 40 and 50—from 50 to 60 the excess of females becomes very considerable and rapidly increases till between 70 and 80—from this period until 90 and 100, there is a gradual decrease, but beyond 100 years, the population becomes as 100 males to 283.33 females, thus showing that from the period of 50 years longevity is very much in favour of the females—especially, in the latter periods of life. The whole number of the males beyond 50, is 5432 or 1 to 15.37 of the whole number of males; 7738 females, or 1 to 11.60 of the whole number of females—the two together being 7.59 per cent of the whole white population upwards of 50 years of age. Beyond the age of 70, there are only 747 males or 1 to 111.83, of the 83.536 males, and only 1276 females or 1 to 70.37, of the 89.809 females, or 2023 of both sexes beyond the age of 70 years, being only about 1.16 per cent of the whole white population.

Ages of Coloured Population of City and County.

Previous to the census of 1820, the ages of this class are not given. The census of 1790, 1800, and 1810, did not distinguish the coloured from other persons not taxed. We have, therefore, no points of comparison beyond 1820.

In 1820, there were

Under 14 years	1813 males,	1814 females.	1 excess.
From 14 to 26	1030	1844	814
26 to 45	1746	2181	435
45 and upwards	628	828	200
Total,	5217	6667	

At the age of 14, the males and females were equal—while that of whites at 16 (the nearest analogous age), was in favour of the females from 5 to 13 per centum. The number *under* 14, of males to the whole number of males, was as 1 to 2.82, and females as 1 to 3.67, and to the whole coloured population as 1 to 3.30.

Between 14 *and* 26, the males were 100 to 179.03 females—the proportion of the whites, *from* 16 *to* 26, was 100 to 109.86, excepting in 1820, when it was 100 to 121.37. The proportion of those, between 14 and 26, to the whole of each sex, was as 1 to 5.16 for males—and 1 to 6.47 for females—and to the whole coloured population, as 1 to 4.17.

From 26 *to* 45, there were males 100 to 124.91 females—proportion of whites at those ages 100 to 109.36. The proportion to the whole of each sex 1 to 3.45 for males—1 to 3.05 for females—and to the whole population as 1 to 3.05.

At 45 *and upwards*, there were 100 males to 131.85 females—the whites, at same ages, 100 to 123.26. The proportions to the whole sex as 1 to 8.46 for males—1 to 8.05 for females—and to the whole population as 1 to 8.23.

In 1830, the number of males above 55, 408, and females 535, or 100 males to 131.12 females. The males above that age being, to the whole number of males, as 1 to 16.40; and the females, to the whole number of that sex, as 1 to 16.45; and both, to the whole coloured population, as 1 to 16.53.

The number of persons *above* 100 is 27, viz. 14 males and 13 females; or, in proportion to the whole coloured population, as 1 to 577.59.

COMPARISON WITH THE WHITES.

Under the age of 10, the whites were to the whole population as 1 to 3.70—coloured were as 1 to 4.58.

Above the age of 50, the whites were as 1 to 13.16—above the age of 55, the coloured were as 1 to 16.53.

Above the age of 100, the whites were as 1 to 17.334.
100, coloured 1 577.59.

Showing an extraordinary difference in longevity, on the side of the coloured population; and that, while in the case of the whites, it is in favour of the females as 2.33 to 1; in the coloured it is as .92 to 1—or, in the former, 100 males to 233.33 females, and, in the latter, as 100 males to 92.08 females.

The following table presents a view of the coloured population, in 1830, similar to that of the whites.

AGES.	Coloured population of the city and county, according to the census of 1830, at the different periods of life.			Proportion of males to females at each age.		Proportion of each sex, at the respective ages, to the whole number of that sex.		Propor. the w at each to the c pop. of and cou
	Males.	*Fem.*	*Total.*	*Males.*	*Females.*	*Males.*	*Females.*	
Under 10 years of age	1658	1747	3405	100	105.36	1 to 4.09	1 to 5.03	1 to 4.
Between 10 and 24	1772	2764	4536	100	155.98	1 3.82	1 3.19	1 3.
24 36	1792	2405	4197	100	134.20	1 3.79	1 3.66	1 3.
36 55	1162	1352	2514	100	116.35	1 6.00	1 6.58	1 6.
55 100	394	522	916	100	132.48	1 17.21	1 16.86	1 17.
100 and upw'ds	14	13	27	100	92.85	1 485.14	1 677.15	1 577.
	6792	8803	15595	100	129.46			

Decrease by deaths, and increase by births.

In 1810, the population of the districts included within the bills of mortality (viz: the City, Northern Liberties, Penn Township, Kensington, Southwark, Moyamensing, Passyunk and Blockley, was 98,282, and the deaths, deducting still born, were 1897 or 1 in 51.80. In 1820, the population was 121,980, deaths 3189 or 1 in 38 25, and in 1830 the population (less Blockley) 167,811, deaths 3948 or 1 in 42.50.

The whole number of *deaths* in the 10 years from 1820 to 1830 was 40,506, viz: 34,044 whites, and 6462 coloured, males 22,360, females 18,146, or 100 males to 81.15 females.

The whole number of *births* in the 10 years from 1820 to 1830 was 64,637, viz: males 33,569, females 31,068, or 100 males to 92.54 females—colour not designated.

The deaths were to the births in those 10 years as 100 of the former to 159.56 of the latter, or as 1 to 1.59.

In both cases, still born are included. For several years a small portion is designated "sex unknown"—in the above calculation, we have appoined them in each year by those of the same year of which the sexes were ascertained.

The difference between the births and deaths in the 10 years is 24,131, which, if they are correctly reported, shows *that* to be the *natural* increase, which taken from the total increase viz: 47,044, will leave 22,913 to have been supplied from abroad, from the country, or from other cities. The natural increase, therefore, and that from migration was nearly equal, or 100 from the former source for every 94.95, from the latter.

The increase, in the ten years, of those districts was

	Males	Females
	22,854	24,190
Increase by births,	11,209	12,922
Showing the increase from the other sources was composed of	11,645	11,268

Or only a small difference of males more than females.

The following table shows a comparative view of the births and deaths in the 10 years from 1820 to 1830.

BIRTHS.

	Sexes.			Still born.	Proportion of still born to births.	Proportion of sexes to each other.	
Years.	*Males.*	*Fem.*	*Total.*			*Males.*	*Females.*
1821	2630	2417	5047	211	1 in 24	100	91.93
1822	3021	2701	5722	257	22	100	89.40
1823	2977	2836	5813	228	25	100	94.59
1824	3062	2771	5833	215	27	100	90.49
1825	3444	3182	6626	273	24	100	92.39
1826	3526	3214	6740	306	22	100	91.15
1827	3581	3452	7033	286	24	100	96.39
1828	3694	3506	7200	321	22	100	94.91
1829	3638	3357	6995	293	24	100	92.29
1830	3996	3632	7628	302	25	100	90.89
	33569	31068	64637	2692	1 in 24	100	92.54

DEATHS.

	Sexes.			Proportion of sexes to each other.		Number of deaths of each colour.		Proportion of Whites to Blacks.		Excess of births over deaths.	Proportion of deaths to births.
Years.	*Males.*	*Fem.*	*Total.*	*Males.*	*Fem.*	*White.*	*Black.*	*White.*	*Black*		
1821	1824	1348	3172	100	73.90	2486	686	100	27.59	1875	1 to 1.59
1822	2097	1494	3591	100	71.24	3031	560	100	18.47	2131	1 1.59
1823	2492	2108	4600	100	84.59	3800	800	100	21.05	1213	1 1.26
1824	2365	2034	4399	100	86.00	3696	703	100	19.02	1434	1 1.32
1825	2093	1719	3812	100	82.13	3317	495	100	14.92	2814	1 1.73
1826	2201	1950	4151	100	88.59	3622	529	100	14.60	2589	1 1.62
1827	2178	1767	3945	100	81.13	3188	757	100	23.74	3088	1 1.78
1828	2370	1922	4292	100	81.09	3586	706	100	19.69	2908	1 1.68
1829	2330	1964	4294	100	84.29	3651	643	100	17.61	2701	1 1.63
1830	2410	1840	4250	100	76.34	3667	583	100	15.92	3378	1 1.79
	22360	18146	40506	100	81.15	34044	6462	100	27.99	24131	1 to 1.59

Within the last 10 years there have died 40,506 at the following ages.

		Propor. of 1000.
Under 1 year deducting Still born,	8,570	226.03
Between 1 and 2	3,291	86.80
Between 2 and 5	2,793	73.66
Between 5 and 10	1,479	39.01
Between 10 and 15	712	18.77
Between 15 and 20	1,144	30.17
Between 20 and 30	4,543	119.85
Between 30 and 40	4,738	124.97
Between 40 and 50	3,733	98.46
Between 50 and 60	2,630	69.36
Between 60 and 70	1,932	50.96
Between 70 and 80	1,352	35.66
Between 80 and 90	746	19.68
Between 90 and 100	214	5.64
Between 100 and 110	32	.85
Between 110 and 120	5	.13
	37,914	1000.00

Or more than one-fifth under the age of one year.
Or nearly one-half under twenty years.
Nearly a fourth between twenty and forty.
More than a fifth between forty and seventy.

At the census of 1830 there were 44,402 persons within the limits of the bills of mortality, under the age of 10, of both sexes and colours, and there died 1821 (excluding still born), which was at the rate of 4.10 per cent on the population within that age.

As the ages of the coloured population are not given after 10 years, precisely in the same manner as the whites, we are compelled, in order to pursue the calculation, to take the nearest ages for that portion—it can be, therefore, merely an approximation to correctness.

Between 10 and 20, there were 35,573 whites, and between 10 and 24, there were 4550 coloured, together 40,123; and there were between the ages of 10 and 20,175 deaths or .43 per cent on the population.

Between 20 and 30, there were 32,990 whites; and between 24 and 36, 3978 coloured—total 36,968; there were 488 deaths between the ages of 20 and 30, or 1.32 per cent on population.

Between 30 and 50, there were 31,844 whites; and between 36 and 55, 2377 coloured—total 34,221; there were between the ages of 30 and 50, 810 deaths, or 2.37 per cent on the population.

Between 50 and 100, there were 11,216 whites; and between 55 and 100, 845 coloured—total 12,061; there were 652 deaths between the ages of 50 and 104, or 5.40 per cent on population.

Above the age of 100, there were 37 whites and coloured, and there were 2 deaths at that age, or 5.40 per cent on population.

Under 10	4.10	on population.
Between 10 and 20	.43	do.
Between 20 and 30	1.32	do.
Between 30 and 50	2.37	do.
Between 50 and 100	5.40	do.
Above 100	5.40	do.

In volume I. page 116 of the "American Journal of Medical Sciences" will be found a very interesting essay, and numerous tables, on the medical statistics of Philadelphia, in 1827, by Governeur Emerson, M.D.

UNIVERSITY OF PENNSYLVANIA.

Dr Philip Syng Physick has resigned the chair of anatomy in the medical department of the University of Pennsylvania. The justness of the following compliment to this distinguished individual on the part of the Trustees, will be universally admitted by the members of that profession, which he has contributed so much to elevate by enlarging its sphere of usefulness.

"At an adjourned meeting of the Trustees, held October 21, 1831, the following report was made, and the resolution attached thereto adopted, with instruction to the secretary to communicate a copy of the same to Professor Physick, and to the medical faculty.

"The committee to whom was referred, on the 14th inst., the resolutions of the medical faculty, respecting the resignation of Professor Physick, fully coinciding with the views and feelings expressed by the faculty, beg leave to recommend to the Board of Trustees the adoption of the following resolution:

"*Resolved*, That in consideration of the important services rendered to the medical department of the University by Professor Philip Syng Physick, in the chair of surgery as well as of anatomy, during a period of twenty-six years, and for the purpose of continuing his connexion with the school, to the fame and usefulness of which he has so largely contributed, there be conferred on the said Philip Syng Physick, the honorary appointment of Emeritus Professor of Surgery and Anatomy in this University. From the minutes.

Signed, JAMES C. BIDDLE, Secretary, &c."

Doctor William E. Horner has been elected professor of anatomy in the University of Pennsylvania, in place of Doctor Physick, resigned. The reputation which Dr Horner has won for himself, as a learned and indefatigable teacher and writer of anatomy, needs not additional publicity from us.

PHILADELPHIA MEDICAL INSTITUTE.

The course of lectures for the summer term in the Medical Institute begins on the first Monday in April, and is continued until the first of November. The month of August is a vacation. The winter examinations of the subjects lectured on in the University of Pennsylvania are conducted by Drs Jackson, Bell, Mitchell, Hodge and Harris, with such commentaries and illustrative remarks as are deemed proper.

N. Chapman, M.D., on the Practice of Medicine. William E. Horner, M.D., on Anatomy. William P. Dewees, M.D., on Midwifery. Samuel Jackson, M.D., on Materia Medica. John Bell, M.D., on the Institutes of Medicine and Medical Jurisprudence. J. K. Mitchell, M.D., on Chemistry. H. L. Hodge, M.D., on the Principles of Surgery. Thomas Harris, M.D., on Operative Surgery.

PHILADELPHIA ASSOCIATION FOR MEDICAL INSTRUCTION.

Joseph Parrish, M.D., Practice of Medicine. Franklin Bache, M.D., Chemistry. John Rhea Barton, M.D., Surgery. Geo. B. Wood, M.D., Materia Medica. Samuel George Morton, M.D., Anatomy.

The winter course of examinations on the various branches of medicine will commence on the third Monday in November, and be continued till the first of March.

The examinations on Midwifery will be conducted by Charles D. Meigs, M.D.

GREGORY'S PRACTICE OF PHYSIC.—NEW EDITION.

A new edition of the Practice of Physic, by Dr Gregory, from the last London edition, with Notes and Additions, adapted to the Practice of the United States, by Dr Potter, Professor of the Practice of Physic in the University of Maryland, and Dr S. Colhoun of this city, is just published by Towar, J. & D. M. Hogan, No. 255 Market street.

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